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THE POST-DAM SYSTEM VOLUME IV - RELATIONAL DATA BASE MANAGEMENT SYSTEM (RDBMS)

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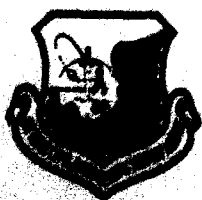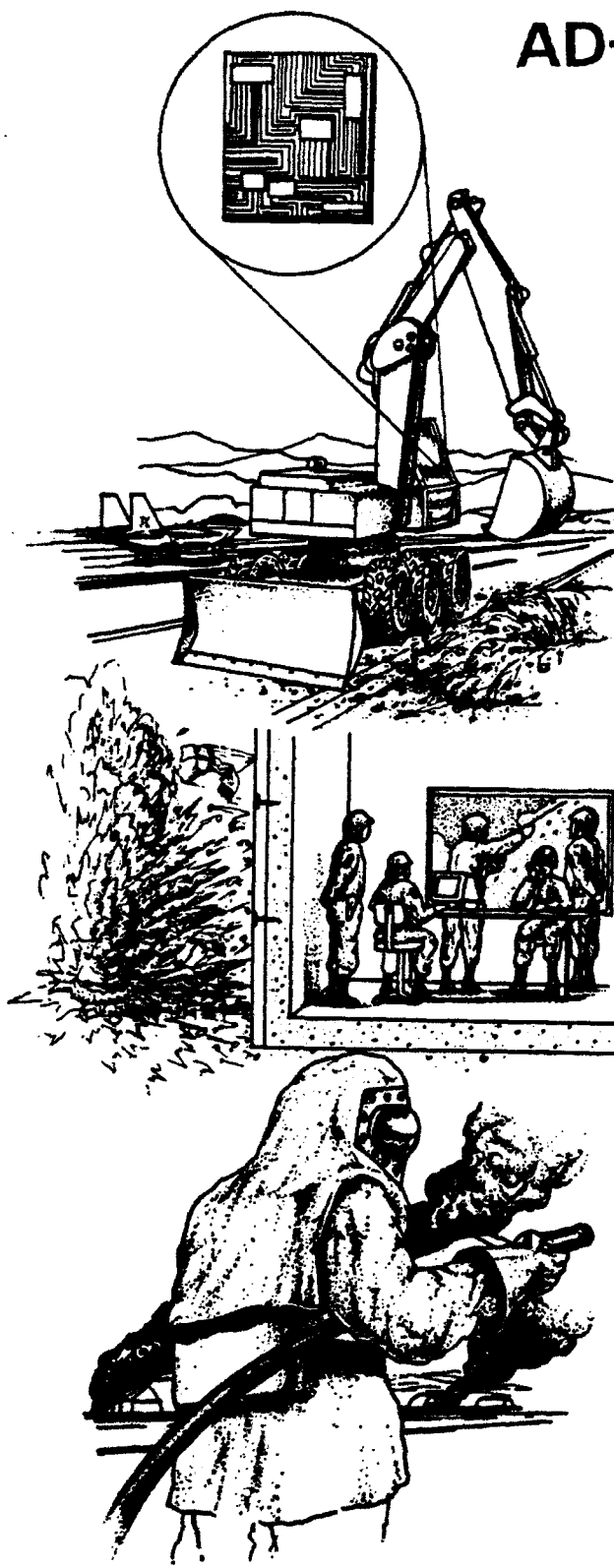POST OFFICE BOX 40128
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Mission accomplishment in PACAF and USAFE depends on base recovery capability in a postattack environment. Base recovery includes identifying, analyzing, and repairing facility damage. For facilities critical to sortie generation, this process must be accomplished expediently.

In a postattack environment, field information on facility damage is collected and analyzed to determine structural integrity and usability. From this analysis, a repair schedule is developed. This is currently a time comsuming process that is shortened by using a computerized system.

The scope of this effort was to develop a computerized postattack damage assessment system that recommends repair strategies, keeps inventory of materials and equipment, and schedules repairs based on manpower and equipment availability.

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A.   OBJECTIVE

The objective of this report is to describe the software and hardware of the POST-DAM System, developed by Applied Research Associates, Inc., for airbase facility postattack damage assessment. This report contains descriptions of prototype software and hardware, and recommendations for full-scale development of both software and hardware.

B.   BACKGROUND

In a postattack environment, field information on mission-critical facility damage is collected and analyzed to determine structural integrity and usability. From this analysis, a repair schedule is developed. This is a time-consuming process when done without the aid of a computerized system. Consequently, the POST-DAM System was developed to determine repair strategies with an expert system, keep track of materials and equipment with a relational database management system, and schedule repairs based on manpower and equipment availability with a project management system.

C.   SCOPE

This technical report consists of nine volumes. Volume I describes software and hardware used with the prototype POST-DAM System, and recommends software and hardware for full-scale development. Volumes II through VIII are software user's manuals, which describe how to install and use the prototype software with the POST-DAM System. Volume IX is a field manual that contains diagrams of structures that are used with the POST-DAM system to locate damaged elements.

D.   EVALUATION METHODOLOGY

The prototype POST-DAM System was developed using commercial, off-the-shelf (COTS) software and hardware. The system was constructed by integrating the software and hardware in such a way that a remote computer in the field can communicate with a host computer in the Base Civil Engineering (BCE) Damage Control Center (DCC). The POST-DAM system determines repair strategies, keeps track of materials and equipment, and schedules repairs based on manpower and equipment availability. This prototype system has been evaluated in-depth, and subsequent recommendations are made herein about software and hardware that should be used for full-scale development.

E.   CONCLUSIONS

The prototype POST-DAM System is functional, but has limitations with respect to both hardware and software. The following problems were encountered:

1.   The prototype remote computer is not portable, and cannot be used in the field. No satisfactory, hand-held remote terminal was available for this project.

2.   The expert system cannot hold all the information required for full-scale development, because it cannot use extended memory.

3.   Both the relational database management system and project management system require more human interaction than desired.

4.   The communication system software is not compatible with the Survivable Base Recovery After Attack Communication System (SBCS) being developed for ESD by Sumaria Systems, Inc., with which the POST-DAM System is required to interface.

F.   RECOMMENDATIONS

For full-scale development, the following features should be incorporated in the POST-DAM System.

1.   Replace the prototype remote computer with a hand-held terminal unit having at least 2 Mb of random access memory, and which can run applications requiring 640 Kb of base memory.

2.   Replace the prototype host computer with a system having at least 4 Mb of random access memory, IEEE 802.3 LAN ports, and able to support multi-tasking operations.

3.   Replace the CLIPS expert system shell with an expert system shell capable of supporting applications at least twice as large as those developed for the prototype system.

4.   Set the host computer up to interface with the IEEE 802.3 Ethernet local area network (LAN) used by SBCS.

5.   Construct a single computer program to replace the relational database management system and the project management system, to minimize the required amount of human intervention. This system should be developed by personnel with a strong background in computer science.

PREFACE

This report was prepared by Applied Research Associates, Inc. (ARA), P.O. Box 40128, Tyndall Air Force Base, FL 32403, under Contract F08635-88-C-0067, for the Air Force Civil Engineering Support Agency, Tyndall Air Force Base, Florida.

This report (Volumes I though IX) summarizes work completed between 1 February 1989 and 1 March 1991. Lt. James Underwood (USN) was the HQ AFCESA/RACS Project Officer.

This report has been reviewed by the Public Affairs Office, and is releasable to the National Technical Information Service (NTIS). At NTIS it will be available to the public, including foreign nations.

This technical report has been reviewed and is approved for publication.
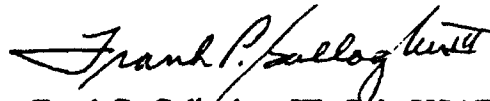
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LIST OF FIGURES

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SECTION 1

INTRODUCTION

1.1 OBJECTIVE

The objective of this software user's manual (SUM) is to explain the procedures for using the POST-DAM Relational Data Base Management System (RDBMS). This management system was constructed using the R:BASE for DOS programming language, then compiled with R:BASE for DOS RUNTIME. This process created an execute-only version of the R:BASE application, eliminating the need to provide the end user with the entire R:BASE system. Source code for the POST-DAM RDBMS is provided in Appendix A.

1.2 BACKGROUND

The POST-DAM RDBMS determines if enough material, equipment, and manpower are available to proceed with the expedient repair of a mission-critical facility in a postattack environment. If there are not enough resources available, the repair must either be abandoned, or replanned. If there are enough resources available, POST-DAM RDBMS allocates materials to the repair.

After a group of repairs have been selected for a facility, Harvard Project Manager (HPM) is executed from the RDBMS using DESQview 386. The HPM program schedules the repairs in accordance with equipment and manpower availability, and is discussed in further detail in Document 2.2.4. The DESQview 386 program allows the computer to run several DOS programs at the same time, and is discussed in further detail in Document 2.2.3.

1.3 APPROACH

The POST-DAM expert system (PDES) creates three files for each mission-critical facility being considered for expedient repair. Files of the form B(NUMBER).OUT ((NUMBER) correspond to the Airbase Facility Number) are ASCII files containing repair strategy information for a facility, in user-readable format. Files of the form B(NUMBER).MAT and B(NUMBER).EQP contain information about the material and equipment, respectively, required for each repair. Manpower and equipment are handled together, since both are nonexpendable. The material and equipment files, in delimited ASCII format, are imported by POST-DAM RDBMS and loaded into tables. After the information for an individual structure is loaded into the RDBMS tables, the user checks to see if enough equipment is available to proceed with the repairs. If not, the user can either delete the repairs that are not possible, or change the equipment requirements. For the possible repairs, the user checks to see if there is enough material. If not, the user can delete the repairs that are not possible, or change the material requirements. After equipment and material requirements are satisfied, the user chooses the highest priority repair to be carried out, and allocates material to that repair. With this process the materials supply table is updated by subtracting the material required. The user then repeats this process until materials have been allocated to all of the possible repairs. After a group of repairs have been selected for a facility, the user runs the Harvard Project

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Manager (HPM) program using DESQview 386, and schedules the possible repairs in accordance with equipment and manpower availability.

SECTION 2

APPLICABLE DOCUMENTS

2.1 SETA CONTRACT

2.1.1 <u>Postattack Damage Assessment of Facilities</u>, Subtask 2.02, Air Force Engineering and Services Center, SETA Contract F08635-88-C-0067, December 87.

2.1.2 <u>Postattack Damage Assessment of Facilities</u>, Subtask 2.02.1, Air Force Engineering and Services, SETA Contract F08635-88-C-0067, October 89.

2.1.3 <u>Postattack Damage Assessment of Facilities</u>, Subtask 2.02.2, Air Force Engineering and Services, SETA Contract F08635-88-C-0067, February 89.

2.2 POST-DAM SYSTEM USER'S MANUALS

2.2.1 The POST-DAM System, Volume 1, <u>Introduction to the POST-DAM System</u>, Applied Research Associates, Inc., Report to AFESC, March 91.

2.2.2 The POST-DAM System, Volume 2, <u>Software User's Manual for the Expert System</u>, Applied Research Associates, Inc., Report to AFESC, February 91.

2.2.3 The POST-DAM System, Volume 3, <u>Software User's Manual for DESQview 386</u>, Applied Research Associates, Inc., Report to AFESC, December 90.

2.2.4 The POST-DAM System, Volume 5, <u>Software User's Manual for the Harvard Project Manager</u>, Applied Research Associates, Inc., Report to AFESC, December 90.

2.2.5 The POST-DAM System, Volume 6, <u>Software User's Manual for Crosstalk Mk.4 on the Host Computer</u>, Applied Research Associates, Inc., Report to AFESC, December 90.

2.2.6 The POST-DAM System, Volume 7, <u>Software User's Manual for the TED 1.1 Editor</u>, Applied Research Associates, Inc., Report to AFESC, December 90.

2.2.7 The POST-DAM System, Volume 8, <u>Software User's Manual for Crosstalk Mk.4 on the Remote Computer</u>, Applied Research Associates, Inc., Report to AFESC, March 91.

2.2.8 The POST-DAM System, Volume 9, <u>Field Manual of Mission-Critical Facilities for Use with the Prototype POST-DAM System</u>, Applied Research Associates, Inc., Report to AFESC, March 91.

2.3 SOFTWARE USER'S MANUALS

2.3.1 <u>R:BASE for DOS User's Manual</u>, Microrim, Inc., 1988.

2.3.2 <u>R:BASE for DOS Runtime User's Guide</u>, Microrim, Inc., 1988.

SECTION 3

INSTRUCTIONS FOR USE

3.1 INSTALLING THE POST-DAM RDBMS

3.1.1 System Configuration

The POST-DAM RDBMS is designed to run with PC-DOS 2.0 or higher on an IBM PC, or fully compatible microcomputer with 512 K random access memory (RAM), color or monochrome monitor, hard disk, and a 5.25-inch floppy disk drive. The POST-DAM RDBMS is designed to operate with any printer that can be attached to the computer. Before using a printer, test it with the computer to be sure it works properly. If the printer responds to the [SHIFT-PrtSc] or [Ctrl-PrtSc] keys, then the POST-DAM RDBMS can use the printer with any function that allows output to a printer. Also, the POST-DAM RDBMS supports the Microsoft mouse, or any pointing device compatible with it.

To run the POST-DAM RDBMS, the computer needs a DOS config.sys file with a FILES command specifying that at least 20 files may be open, and a BUFFERS command specifying at least 16 buffers. Before installing the application for use, be sure that the following commands are in the config.sys file:

```
FILES=20
BUFFERS=16
```

or a number larger than 20 for FILES and larger than 16 for BUFFERS.

3.1.2 Installing POST-DAM RDBMS Files

The POST-DAM RDBMS files are copies directly from the four POST-DAM RDBMS program disks into a single subdirectory in the root directory of the hard disk. Starting from the root directory of the hard disk, use the DOS MAKE DIRECTORY command to create the subdirectory PDAM by typing

```
C:\>md\pdam [Enter]
```

where C is the root directory of the hard disk, highlighted characters are typed by the user, and [Enter] means press the enter key after typing the command. Next, using the DOS CHANGE DIRECTORY command, change to the subdirectory PDAM by typing

```
C:\>cd\pdam [Enter]
```

Next, copy the files from the POST-DAM RDBMS program disks by inserting one program disk at a time into floppy disk drive A:, and typing

```
C:\pdam>copy a:*.* [Enter]
```

until all four disks have been copied into the PDAM subdirectory.

3.2 STARTING THE POST-DAM RDBMS

The POST-DAM RDBMS program is executed from the DESQview 386 utility. This process is described in Section 3.4 of Document 2.2.3. After starting the POST-DAM RDBMS, the RUNTIME title screen appears first as shown in Figure 3.1, then the POST-DAM RDBMS main menu appears as shown in Figure 3.2.

3.3 POST-DAM RDBMS MENU OPTIONS

The POST-DAM RDBMS consist of a series of hierarchical menus, each with a list of options. Individual options are highlighted by pressing the up or down arrow keys for vertical menus, and the left or right arrow keys for horizontal menus. Menu options can also be highlighted by moving a mouse up or down for vertical menus, and left or right for horizontal menus. To choose a menu option, the user highlights the desired choice, and presses the [Enter] key. On vertical menus this can also be done by pressing the number corresponding to the desired option.

3.3.1 Main Menu

POST-DAM RDBMS begins with the main (top level) menu, Resource Data Base shown in Figure 3.2, with option (1) highlighted.

3.3.1.1 Transfer Data Files

This is the first option in the main menu. When this option is selected, the second level menu entitled Transfer Data Files appears on the screen, as shown in Figure 3.3, with option (1) highlighted. This menu contains six options, which are used to import and export data between the RDBMS and other software applications.

3.3.1.1.1 Input Required Materials Files

This is the first option in the Transfer Data Files Menu. The function of this option is to import the required materials data for expedient repair of a selected structure. As shown in Figure 3.4, when this option is selected, the screen displays a list of delimited ASCII files of the form B(NUMBER).MAT, where (NUMBER) corresponds to the Air Base facility number of the structure. The user is then prompted to enter the facility number that corresponds to the structure that is being considered for expedient repair. The user types the facility number, then presses the [Enter] key, and the delimited ASCII file is loaded into the required materials table in the RDBMS.

3.3.1.1.2 Input Required Equipment Files

This is the second option in the Transfer Data Files Menu. The function of this option is to import the required equipment data for expedient repair of a selected structure. As shown in Figure 3.5, when this option is selected, the screen displays a list of delimited ASCII files of the form B(NUMBER).EQP, where (NUMBER) corresponds to the Air Base facility number of the structure. The user is then prompted to enter the facility number that corresponds to the structure that is being considered for expedient repair. The user types the facility

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```
****************
**************************
********************************
**********************************          RUNTIME
************************************
**************          ****************
*************          ****************
************          *****************
************          ******************
*************      *******************
*************      *******************
*************      ********************      R:BASE for DOS
*************      ********************
*************      *********************     Copyright (c) 1988
*************      **********************        by Microrim, Inc.
*************      **********************        Redmond, WA
*************      ***********************
*************      ****************************
```

Figure 3.1.   RUNTIME Title Screen.

```
═══════════════Resource Data Base═══════════════
    (1)  Transfer Data Files
    (2)  Compute Possible Repairs From Materials
    (3)  Compute Possible Repairs From Equipment
    (4)  Remove And Edit Data In Materials Tables
    (5)  Remove And Edit Data In Equipment Tables
    (6)  View And Print Tables
    (7)  View Or Print Repair Strategy Files
    (8)  Exit
```

Figure 3.2.   Main Menu.

```
┌──────────────────────Transfer Data Files──────────────────────┐
│          (1)  Input Required Materials Files                   │
│          (2)  Input Required Equipment Files                   │
│          (3)  Input Materials Supply File                      │
│          (4)  Input Equipment Supply File                      │
│          (5)  Output Materials Supply File                     │
│          (6)  Exit                                             │
└───────────────────────────────────────────────────────────────┘
```

Figure 3.3.   Transfer Data Files Menu.

```
Volume in drive D is DISK1_VOL2
Directory of D:\RBFILES\PDRB\

B1        MAT      431   5-21-90   1:50p
        1 File(s)   2412544 bytes free

   B(NUMBER).mat

Enter The Facility NUMBER:
```

Figure 3.4.   Prompt for Required Materials Input.

```
Volume in drive D is DISK1_VOL2
Directory of D:\RBFILES\PDRB\

B1        EQP       399   5-21-90   1:58p
     1 File(s)   2410496 bytes free

  B(NUMBER).eqp

Enter The Facility NUMBER:
```

Figure 3.5.   Prompt for Required Equipment Input.

number, then presses the [Enter] key, and the delimited ASCII file is loaded into
the required equipment table in the RDBMS.

3.3.1.1.3   Input Materials Supply File

     This is the third option in the Transfer Data Files Menu. The function of
this option is to import the most current list of facility expedient repair
materials that are available on the Air Base. When this option is selected, the
delimited ASCII file ISUP.DAT is loaded into the materials supply table. Before
using this option it is important to clear the materials supply table before
loading the new values. The process of clearing the materials supply table is
explained in Section 3.3.1.4.2 of this SUM.

3.3.1.1.4   Input Equipment Supply File

     This is the fourth option in the Transfer Data Files Menu. The function
of this option is to import the most current list of facility expedient repair
equipment and manpower that is available on the Air Base. When this option is
selected, the delimited ASCII file INEQP.DAT is loaded into the equipment supply
table. Before using this option it is important to clear the equipment supply
table before loading the new values. The process of clearing the equipment
supply table is explained in Section 3.3.1.5.2 of this SUM.

3.3.1.1.5 Output Materials Supply File

This is the fifth option in the Transfer Data Files Menu. The function of this option is to export the most current list of facility expedient repair materials on the Air Base. When this option is selected, the current values in the materials supply table are loaded into the delimited ASCII file OSUP.DAT. This file can be used by other software applications that need to keep track of the facility expedient repair materials being allocated by the POST-DAM RDBMS.

3.3.1.1.6 Exit

This is the sixth option in the Transfer Data Files Menu. When this option is selected, the curser is returned to the first option in the main menu. The user can also return to the main menu by pressing the [Esc] key at any of the options in the Transfer Data Files Menu.

3.3.1.2 Compute Possible Repairs from Materials

This is the second option in the main menu. When this option is selected, the screen displays the second-level menu entitled Compute Possible Repairs from Materials, as shown in Figure 3.6 with option (1) highlighted. This menu contains seven options, which are used to determine the repairs that are not possible because of a lack of materials, delete repairs, allocate materials to the repairs that are possible, and write materials tables to external files.

3.3.1.2.1 Load Materials into the Compute Table

This is the first option in the Compute Possible Repairs from Materials Menu. When this option is selected, repair numbers and the corresponding materials are loaded into the materials compute table. In the materials compute table the quantity of a required material is subtracted from the quantity of that material, which is available on the Air Base. If the result is greater than or equal to zero, a flag is set to y, which means the repair is possible. If the result is less than zero, a flag is set to n, which means the repair is not possible. After the materials compute table is filled, the user can view the table as described in Section 3.3.1.6.3 of this SUM.

3.3.1.2.2 Delete Repairs that are Not Possible

This is the second option in the Compute Possible Repairs from Materials Menu. When this option is selected, the repairs that are not possible appear on the screen in ascending order as shown in Figure 3.7, where, as an example Repair Number 2 is not possible. The user presses [Enter] to delete the repair, and any other key including y to save the repair. When a repair is deleted it is removed from all material and equipment tables. If the repair is saved, the user can enter the required materials table and change the repair requirements so it becomes a possible repair as described in Section 3.3.1.4.6 of this SUM.

3.3.1.2.3 Delete Repairs that are Not Wanted

This is the third option in the Compute Possible Repairs from Materials Menu. The function of this option is to delete repairs possible in terms of

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```
┌─────────────────────────────────────────────────┐
│  ┌────────Compute Possible Repairs From Materials┐│
│  │ (1)  Load Materials Into The Compute Table     ││
│  │ (2)  Delete Repairs That Are Not Possible      ││
│  │ (3)  Delete Repairs That Are Not Wanted        ││
│  │ (4)  Allocate Materials To A Repair            ││
│  │ (5)  Write The Required Materials Table To MAT.DAT ││
│  │ (6)  Write The Materials Supply Table To MSUP.DAT ││
│  │ (7)  Exit                                      ││
│  └────────────────────────────────────────────────┘│
│                                                    │
│                                                    │
│                                                    │
│                                                    │
│                                                    │
│                                                    │
│                                                    │
└─────────────────────────────────────────────────┘
```

Figure 3.6.   Compute Possible Repairs from Materials Menu.

```
┌─────────────────────────────────────────────────┐
│                                                    │
│                                                    │
│                                                    │
│ 2 Is Not A Possible Repair!                        │
│ Delete This Repair From The Tables [Y]             │
│                                                    │
│                                                    │
│                                                    │
│                                                    │
│                                                    │
│                                                    │
│                                                    │
└─────────────────────────────────────────────────┘
```

Figure 3.7.   Prompt for Deleting Repairs that are Not Possible.

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materials and equipment, but not critical to restoring mission support. When this option is selected, the user is prompted to enter the number of the repair to be deleted, as shown in Figure 3.8. Here the user types the repair number, then presses the [Enter] key, and the repair is deleted from all materials and equipment tables.

3.3.1.2.4   Allocate Materials to a Repair

This is the fourth option in the Compute Possible Repairs from Materials Menu. The function of this option is to allocate materials to a repair. When this option is selected, the user is prompted to enter the number of the repair that is to be executed, as shown in Figure 3.9. When a repair is chosen, the materials supply table is updated to reflect the allocation of materials, the materials compute table is cleared out, and the repair is deleted from the required materials table. Figure 3.10 shows an example where Repair Number 5 was selected. Here, the user pressed the [5] key, and then the [Enter] key, which displays the prompt to go back to the first option in the Compute Possible Repairs from Materials Menu and re-load the materials compute table. The user then presses [Enter], and is returned to the first option in the Compute Possible Repairs from Materials Menu.

3.3.1.2.5   Write the Required Materials Table to MAT.DAT

This is the fifth option in the Compute Possible Repairs from Materials Menu. When this option is selected, the required materials table is written to the external ASCII file MAT.DAT in the table format. This file can then be transferred and used in other computer applications.

3.3.1.2.6   Write the Materials Supply Table to MSUP.DAT

This is the sixth option in the Compute Possible Repairs from Materials Menu. When this option is selected, the materials supply table is written to the external ASCII file MSUP.DAT in the table format. This file can then be transferred and used in other computer applications.

3.3.1.2.7   Exit

This is the seventh option in the Compute Possible Repairs from Materials Menu. When this option is selected, the curser is returned to the first option in the main menu. The user can also return to the main menu by pressing the [Esc] key at any of the options in the Compute Possible Repairs from Materials Menu.

3.3.1.3   Compute Possible Repairs from Equipment

This is the third option in the main menu. When this option is selected, the screen displays the second level menu entitled Compute Possible Repairs from Equipment, as shown in Figure 3.11 with option (1) highlighted. This menu contains five options, which determine the repairs that are not possible because of a lack of equipment, delete the repairs that are not possible, and write the equipment tables to external files.

```
Repair Number To Be Deleted:
```

Figure 3.8. Prompt to Delete Unwanted Repairs.

```
Enter The Repair Number:
```

Figure 3.9. Prompt to Allocate Materials to a Repair.

```
Enter The Repair Number: 5

For Another Repair, Go To (1) And Re-load
The Materials Compute Table
(Hit Enter To Continue)
```

Figure 3.10.   Prompt to Load the Compute Table for the Next Repair.

```
                   Compute Possible Repairs From Equipment
          (1)  Load Equipment Into The Compute Table
          (2)  Delete Repairs That Are Not Possible
          (3)  Write The Required Equipment Table To EQP.DAT
          (4)  Write The Equipment Supply Table To ESUP.DAT
          (5)  Exit
```

Figure 3.11.   Compute Possible Repairs from Equipment Menu.

3.3.1.3.1   Load Equipment into the Compute Table

This is the first option in the Compute Possible Repairs from Equipment Menu. When this option is selected, repair numbers and the corresponding equipment and labor requirements are loaded into the equipment compute table. In the equipment compute table, the quantity of each required piece of equipment or labor is subtracted from the quantity of that equipment or labor which is available. If the result is greater than or equal to zero, a flag is set to y, which means the repair is possible. If the result is less than zero, a flag is set to n, which means that the repair is not possible. After the equipment compute table is filled the user can view the table as described in Section 3.3.1.6.6 of this SUM.

3.3.1.3.2   Delete Repairs that are Not Possible

This is the second option in the Compute Possible Repairs from Equipment Menu. When this option is selected, the repairs that are not possible appear on the screen in ascending order as shown in Figure 3.12, where for example Repair Number 3 is not possible. To delete the repair the user presses [Enter], and to save the repair, type any other key including y. When a repair is deleted, it is removed from all material and equipment tables. If the repair is saved, the user can go into the required equipment table and change the repair requirements so it becomes a possible repair. This process is described in Section 3.3.1.5.6 of this SUM.

3.3.1.3.3   Write the Required Equipment Table to EQP.DAT

This is the third option in the Compute Possible Repairs from Equipment Menu. When this option is selected the required equipment table is written to the external ASCII file EQP.DAT in the table format.   This file can be transferred and used in other computer applications.

3.3.1.3.4   Write the Equipment Supply Table to ESUP.DAT

This is the fourth option in the Compute Possible Repairs from Equipment Menu. When this option is selected the equipment supply table is written to the external ASCII file ESUP.DAT in the table format. This file can be transferred and used in other computer applications.

3.3.1.3.5   Exit

This is the fifth option in the Compute Possible Repairs from Materials Menu. When this option is selected, the curser is returned to the first option in the main menu. The user can also return to the main menu by pressing the [Esc] key at any of the options in the Compute Possible Repairs from Equipment Menu.

3.3.1.4   Remove and Edit Data in Materials Tables

This is the fourth option in the main menu. When this option is selected, the screen displays the second level menu entitled Remove and Edit Material Data, as shown in Figure 3.13 with option (1) highlighted. This menu contains eight

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```
3 Is Not A Possible Repair!
Delete This Repair From The Tables [Y]
```

Figure 3.12.   Prompt for Deleting Repairs that are Not Possible.

```
                    ─────Remove And Edit Material Data─────
            (1)   Delete All Rows In The Required Materials Table
            (2)   Delete All Rows In The Materials Supply Table
            (3)   Delete All Rows In The Materials Compute Table
            (4)   Load Rows In The Required Materials Table
            (5)   Load Rows In The Materials Supply Table
            (6)   Edit Rows In The Required Materials Table
            (7)   Edit Rows In The Materials Supply Table
            (8)   Exit
```

Figure 3.13.   Remove and Edit Material Data Menu.

options, which are used to delete, load, and edit the data contained in the materials tables.

3.3.1.4.1   Delete All Rows in the Required Materials Table

This is the first option in the Remove and Edit Material Data Menu. When this option is selected, all data contained in the required materials table is deleted.

3.3.1.4.2   Delete All Rows in the Materials Supply Table

This is the second option in the Remove and Edit Material Data Menu. When this option is selected, all data in the materials supply table is deleted.

3.3.1.4.3   Delete All Rows in the Materials Compute Table

This is the third option in the Remove and Edit Material Data Menu. When this option is selected, all data in the materials compute table is deleted.

3.3.1.4.4   Load Rows in the Required Materials Table

This is the fourth option in the Remove and Edit Material Data Menu. The purpose of this option is to load new rows of data into the required materials table. This option is used when the materials required for a repair need to be changed, or a new repair is added. When this option is selected, the form shown in Figure 3.14 appears on the screen with the curser at the Repair Number field. The form menu at the top of the screen in Figure 3.14 appears when the user presses [Esc], or [Enter] at the unit field. The four fields in this form are Repair Number, Resource, Quantity Required, and Unit. At the Repair Number Field, the user types the repair number that needs materials, and then [Enter], which brings the curser to the Resource Field. At the Resource Field, the user types in the name of the required material (this must correspond with a name that exists in the material supply table), then [Enter], which brings the curser to the Quantity Required Field. At the Quantity Required Field, the user types the amount of the material required for the repair, and then [Enter], which brings the curser to the Unit Field. At the Unit Field, the user types the unit of the material required (this must be consistent with the unit used in the supply table), then [Enter], which positions the curser to the Add Option in the Form Menu.

At the bottom of the form, are several options activated by pressing function keys. [Esc] returns the user from anywhere in the form, to Add in the horizontal form menu at the top of the screen. [F2] erases the contents of a field from the screen. [Shift F2] erases the contents of a field from the cursor to the end of the field. [Shift F10] displays more function keys at the bottom of the form as shown in Figure 3.15. [F5] resets the value of the current field to its original state (undoes edits) before the user leaves the field. [F7] displays the previous row in the current table. [F8] displays the next row in the current table. [Shift F10] displays more function keys, as shown at the bottom of the form in Figure 3.16. [F9] is not an applicable function in the RDBMS. [F10] displays a general help screen for using a form. [Shift F10] returns the user to the function keys in Figure 3.14. At the very bottom of the

17

```
┌─────────────────────────────────────────────────────────────┐
│  ┌───────────────────────────────────────────────────────┐  │
│  │  Add   Duplicate   Edit again   Discard   Quit         │  │
│  └───────────────────────────────────────────────────────┘  │
│  Repair Number:                                              │
│  Resource:                                                   │
│  Quantity Required:                                          │
│  Unit:                                                       │
│                                                              │
│                                                              │
│                                                              │
│                                                              │
│                                                              │
│                                                              │
│                                                              │
│                                                              │
│                                                              │
│                                                              │
│                                                              │
│  [ESC] Done    [F2] Clear field   [Shift-F2] Clear to end    [Shift-F10] More │
│  Form: item       Table: item       Field: repnum    Page: 1 │
└─────────────────────────────────────────────────────────────┘
```

Figure 3.14.   Form for Loading Rows into the Required Materials Table
with the First Set of Function Keys.

```
┌─────────────────────────────────────────────────────────────┐
│  ┌───────────────────────────────────────────────────────┐  │
│    Add   Duplicate   Edit again   Discard   Quit          │  │
│  └───────────────────────────────────────────────────────┘  │
│  Repair Number:                                              │
│  Resource:                                                   │
│  Quantity Required:                                          │
│  Unit:                                                       │
│                                                              │
│                                                              │
│                                                              │
│                                                              │
│                                                              │
│                                                              │
│                                                              │
│                                                              │
│                                                              │
│                                                              │
│                                                              │
│  [F5] Reset field    [F7] Prev row    [F8] Next row    [Shift-F10] More │
│  Form: item       Table: item       Field: repnum    Page: 1 │
└─────────────────────────────────────────────────────────────┘
```

Figure 3.15.   Form for Loading Rows into the Required Materials Table
with the Second Set of Function Keys.

18

```
┌──────────────────────────────────────────────────────┐
│ Add  Duplicate  Edit again  Discard  Quit             │
└──────────────────────────────────────────────────────┘
Repair Number:
Resource:
Quantity Required:
Unit:




















[F9] Next table    [F10] Help    [Shift-F10] More
Form: item        Table: item        Field: repnum     Page: 1
```

Figure 3.16.   Form for Loading Rows into the Required Materials Table
with the Third Set of Function Keys.

screen, the form gives some general information about the table being accessed,
with which the user need not be concerned.

3.3.1.4.4.1   Add

This is the first option in the form menu. When this option is selected,
data in the form are added to the required materials table, and the fields are
cleared for the user to add another row.

3.3.1.4.4.2   Duplicate

This is the second option in the form menu. When this option is selected,
data in the form are added to the required materials table, and the data are
retained in the fields for further use.

3.3.1.4.4.3   Edit Again

This is the third option in the form menu. When this option is selected,
the curser is returned to the form, where corrections can be made before the
fields are entered into the required materials table.

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3.3.1.4.4.4   Discard

This is the fourth option in the form menu. When this option is selected, data in the fields are removed from the screen, and also from the required materials table.

3.3.1.4.4.5   Quit

This is the fifth option in the form menu. When this option is selected, the data in the fields is added as a new row in the required materials table, and the cursor is returned to the first option in the Remove and Edit Material Data Menu. The user can also return to the Remove and Edit Material Data Menu without adding data to the required materials table by pressing [Esc] while in the form menu.

3.3.1.4.5   Load Rows in the Materials Supply Table

This is the fifth option in the Remove and Edit Material Data Menu. The purpose of this option is to load new rows of data into the materials supply table. This option is used when new materials are added to the materials supply table, and the user does not want to reload the delimited ASCII file ISUP.DAT as described in Section 3.3.1.1.3 of this SUM. When this option is selected, the form shown in Figure 3.17 appears on the screen with the cursor at the Resource Field. As with the required materials form in Section 3.3.1.4.4 of this SUM, the user enters the form menu at the top of the screen by typing [Esc] or [Enter] at the unit field. The three fields in this form are Resource, Quantity On Hand, and Unit. At the Resource Field, the user types in the name of the new material, then [Enter], which brings the cursor to the Quantity On Hand Field. At the Quantity On Hand Field, the user types the amount of the material obtained, and then [Enter], which brings the cursor to the unit field. At the unit field, the user types the unit of the material obtained, and then [Enter], which brings the curser to Add in the form menu.

At the bottom of the form, are several options activated by pressing function keys. These function keys are exactly the same as those in the required materials form for loading rows, and are discussed in Section 3.3.1.4.4 of this SUM.

3.3.1.4.5.1   Add

This is the first option in the form menu. When this option is selected, data in the form are added to the materials supply table, and the fields are cleared for the user to add another row.

3.3.1.4.5.2   Duplicate

This is the second option in the form menu. When this option is selected, data in the form are added to the materials supply table, and the data are retained in the fields for further use.

```
┌─────────────────────────────────────────────────────────────┐
│  Add  Duplicate  Edit again  Discard  Quit                   │
├─────────────────────────────────────────────────────────────┤
│ Resource:                                                    │
│ Quantity On Hand:                                            │
│ Unit:                                                        │
│                                                              │
│                                                              │
│                                                              │
│                                                              │
│                                                              │
│                                                              │
│                                                              │
│                                                              │
│                                                              │
│                                                              │
│                                                              │
│                                                              │
│                                                              │
│ [ESC] Done    [F2] Clear field   [Shift-F2] Clear to end    [Shift-F10] More │
│ Form: supply    Table: supply    Field: product    Page: 1  │
└─────────────────────────────────────────────────────────────┘
```

Figure 3.17. Form for Loading Rows into the Materials Supply Table.

3.3.1.4.5.3 Edit Again

This is the third option in the form menu. When this option is selected, the cursor is returned to the form, where corrections can be made before the fields are entered into the materials supply table.

3.3.1 4.5.4 Discard

This is the fourth option in the form menu. When this option is selected, data in the fields are removed from the screen, and also from the materials supply table.

3.3.1.4.5.5 Quit

This is the fifth option in the form menu. When this option is selected, data in the fields are added as a new row in the materials supply table, and the user is returned to the first option in the Remove and Edit Material Data Menu. The user can also return to the Remove and Edit Material Data Menu without adding the data to the materials supply table by pressing [Esc] while in the form menu.

3.3.1.4.6 Edit Rows in the Required Materials Table

This is the sixth option in the Remove and Edit Material Data Menu. The purpose of this option is to edit the rows of data in the required materials

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table. This option is used when the quantity of a required material is changed, or a material is deleted from a repair. When this option is selected, the form shown in Figure 3.18 appears on the screen with the cursor at Edit. The materials in the required materials table appear in ascending order starting with the repair number, and then with the material type. The four fields in this form are Repair Number, Resource, Quantity Required, and Unit.

At the bottom of the form, there are several options that are activated by pressing function keys. These function keys are exactly the same as those in the required materials form for loading rows, and are discussed in Section 3.3.1.4.4 of this SUM.

3.3.1.4.6.1   Edit

This is the first option in the form menu. When this option is selected, the cursor is moved from the menu, to the Repair Number Field in the form. At the Repair Number Field, the user types either a repair number that needs materials, and then [Enter], or [Enter] for the current repair number, which brings the curser to the Resource Field. At the Resource Field, the user types in the name of the required material (this must correspond with a name that exists in the material supply table), then [Enter], or [Enter] for the current material, which brings the cursor to the Quantity Required Field. At the Quantity Required Field, the user types the amount of the material that is required for the repair, and then [Enter], or [Enter] for the current quantity, which brings the curser to the Unit Field. At the Unit Field, the user types the unit of the material required (this must be consistent with the unit used in the materials supply table), then [Enter], or [Enter] for the current unit, which brings the curser to Edit in the form menu.

3.3.1.4.6.2   Save

This is the second option in the form menu. When this option is selected, the changes made to the data in the fields displayed on the screen replace the original data in the required materials table, and the next row in the required materials table is displayed in the fields on the screen.

3.3.1.4.6.3   Add New

This is the third option in the form menu. When this option is selected, the changes made to the fields on the screen are saved as a new row in the required materials table, and the original data in the fields is retained in the table without changes.

3.3.1.4.6.4   Delete

This is the fourth option in the form menu. When this option is selected, the data in the fields on the screen is removed from the screen, and also from the required materials table. Before this action occurs, a prompt asks the user to confirm the command.

```
┌─────────────────────────────────────────────────────────────┐
│  Edit  Save  Add new  Delete  Reset  Previous  Next  Quit    │
├─────────────────────────────────────────────────────────────┤
│Repair Number:    1                                           │
│Resource:         2X4 16ft                                    │
│Quantity Required:6.                                          │
│Unit:             ea                                          │
│                                                              │
│                                                              │
│                                                              │
│                                                              │
│                                                              │
│                                                              │
│                                                              │
│                                                              │
│                                                              │
│                                                              │
│                                                              │
│                                                              │
│                                                              │
│[ESC] Done    [F2] Clear field   [Shift-F2] Clear to end  [Shift-F10] More│
│Form: item      Table: item       Field: repnum    Page: 1   │
└─────────────────────────────────────────────────────────────┘
```

Figure 3.18.   Form for Editing Rows into the Required Materials Table.

3.3.1.4.6.5   Reset

This is the fifth option in the form menu. When this option is selected, the data in the fields on the screen are returned to there original state before changes were made. This option can only be used before the changes have been saved in the required materials table.

3.3.1.4.6.6   Previous

This is the sixth option in the form menu. When this option is selected, the current data in the fields on the screen are saved in the required materials table, and the previous row of data in the table is displayed in the fields on the screen.

3.3.1.4.6.7   Next

This is the seventh option in the form menu. When this option is selected, the current data in the fields on the screen are saved in the required materials table, and the next row of data in the table is displayed in the fields on the screen.

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3.3.1.4.6.8   Quit

This is the eighth option in the form menu. When this option is selected, the data in the fields on the screen are added as a new row in the required materials table, and the curser is returned to the first option in the Remove and Edit Material Data Menu. The user can also return to the Remove and Edit Material Data Menu without adding the data to the required materials table by pressing [Esc] while in the form menu.

3.3.1.4.7   Edit Rows in the Materials Supply Table

This is the seventh option in the Remove and Edit Material Data Menu. This option allows the user to edit the rows of data in the material supply table when the quantity of a material on hand needs to be changed. When this option is selected, the form shown in Figure 3.19 appears on the screen with the curser at Edit in the menu at the top of the screen. The materials in the material supply table appear in ascending order in terms of Resource. The three fields in this form are Resource, Quantity On Hand, and Unit.

At the bottom of the form, are several options activated by pressing function keys. These function keys are exactly the same as those in the required materials form for loading rows, and are discussed in Section 3.3.1.4.4 of this SUM.

3.3.1.4.7.1   Edit

This option is the first selection in the form menu. When this option is selected, the curser is moved from the menu, to the Resource Field in the form. At the Resource Field, the user types either the name of a material, and then [Enter], or [Enter] for the current material, which brings the curser to the Quantity On Hand Field. At the Quantity On Hand Field, the user types the amount of the material that is available, and then [Enter], or [Enter] for the current quantity, which brings the curser to the Unit Field. At the Unit Field, the user types the unit of the material that is available, then [Enter], or [Enter] for the current unit, which brings the user to Edit in the form menu.

3.3.1.4.7.2   Save

This is the second option in the form menu. When this option is selected, the changes made to the data in the fields displayed on the screen replace the original data in the materials supply table, and the next row in the materials supply table is displayed in the fields on the screen.

3.3.1.4.7.3   Add New

This is the third option in the form menu. When this option is selected, the changes made to the fields on the screen are saved as a new row in the materials supply table, and the original data in the fields is retained in the table without changes.

```
┌─────────────────────────────────────────────────────────┐
│ Edit  Save  Add new  Delete  Reset  Previous  Next  Quit │
└─────────────────────────────────────────────────────────┘
Resource:          1.25in roofing nails
Quantity On Hand: 5330.
Unit:              lbs




















[ESC] Done    [F2] Clear field    [Shift-F2] Clear to end    [Shift-F10] More
Form: supply      Table: supply      Field: product    Page: 1
```

Figure 3.19. Form for Editing Rows into the Materials Supply Table.

3.3.1.4.7.4 Delete

This option is the fourth selection in the form menu. When this option is selected, the data in the fields on the screen are removed from the screen, and also from the materials supply table. Before this action occurs, a prompt asks the user to confirm the command.

3.3.1.4.7.5 Reset

This is the fifth option in the form menu. When this option is selected, the data in the fields on the screen are returned to their original state before changes were made. This option can only be used before the changes have been saved in the materials supply table.

3.3.1.4.7.6 Previous

This is the sixth option in the form menu. When this option is selected, the current data in the fields on the screen are saved in the materials supply table, and the previous row of data in the table is displayed in the fields on the screen.

3.3.1.4.7.7 Next

This is the seventh option in the form menu. When this option is selected, the current data in the fields on the screen are saved in the materials supply

table, and the next row of data in the table are displayed in the fields on the screen.

3.3.1.4.7.8   Quit

This is the eighth option in the form menu. When this option is selected, the data in the fields are added as a new row in the materials supply table, and the cursor is returned to the first option in the Remove and Edit Material Data Menu. The user can also return to the Remove and Edit Material Data Menu without adding the data to the materials supply table by pressing [Esc] while in the form menu.

3.3.1.4.8   Exit

This is the eighth option in the Remove and Edit Material Data Menu. When this option is selected, the cursor is returned to the first option in the main menu. The user can also be returned to the main menu by pressing the [Esc] at any of the options in the Remove and Edit Material Data Menu.

3.3.1.5   Remove and Edit Data in Equipment Tables

This is the fifth option in the main menu. When this option is selected, the second level menu entitled Remove and Edit Equipment Data appears on the screen, as shown in Figure 3.20 with option (1) highlighted. This menu contains eight options, which are used to delete, load, and edit the data contained in the equipment tables.

3.3.1.5.1   Delete All Rows in the Required Equipment Table

This is the first option in the Remove and Edit Equipment Data Menu. When this option is selected, all data contained in the required equipment table are deleted.

3.3.1.5.2   Delete All Rows in the Equipment Supply Table

This is the second option in the Remove and Edit Equipment Data Menu. When this option is selected, all data contained in the equipment supply table are deleted.

3.3.1.5.3   Delete All Rows in the Equipment Compute Table

This is the third option in the Remove and Edit Equipment Data Menu. When this option is selected, all data contained in the equipment compute table are deleted.

3.3.1.5.4   Load Rows in the Required Equipment Table

This is the fourth option in the Remove and Edit Equipment Data Menu. The purpose of this option is to load new rows of data into the required equipment table, when the equipment required for a repair needs to be changed, or a new repair is needed. When this option is selected, the form shown in Figure 3.21 appears on the screen with the curser at the Repair Number Field. The form menu

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```
┌─────────────────────────────────────────────────────────────────┐
│  ┌──────────────Remove And Edit Equipment Data──────────────┐    │
│  ║  (1)  Delete Rows In The Required Equipment Table         ║    │
│  ║  (2)  Delete Rows In The Equipment Supply Table           ║    │
│  ║  (3)  Delete Rows In The Equipment Compute Table          ║    │
│  ║  (4)  Load Rows In The Required Equipment Table           ║    │
│  ║  (5)  Load Rows In The Equipment Supply Table             ║    │
│  ║  (6)  Edit Rows In The Required Equipment Table           ║    │
│  ║  (7)  Edit Rows In The Equipment Supply Table             ║    │
│  ║  (8)  Exit                                                ║    │
│  ╚═══════════════════════════════════════════════════════════╝   │
│                                                                   │
│                                                                   │
│                                                                   │
│                                                                   │
│                                                                   │
│                                                                   │
│                                                                   │
└───────────────────────────────────────────────────────────────────┘
```

Figure 3.20.   Remove and Edit Equipment Data Menu.

at the top of the screen in Figure 3.21 appears when the user presses [Esc], or [Enter] at the Unit Field. The four fields in this form are Repair Number, Equipment Type, Number Required, and Unit. At the Repair Number Field, the user types the repair number that needs equipment, and the [Enter], which brings the cursor to the Equipment Type Field. At the Equipment Type Field, the user types in the name of the required equipment (this must correspond with a name that exists in the equipment supply table), then [Enter], which brings the cursor to the Number Required Field. At the Number Required Field, the user types the required quantity of the piece of equipment, and then [Enter], which brings the cursor to the Unit Field. At the Unit Field, the user types the unit of the piece of equipment required (this must be consistent with the unit used in the equipment supply table), then [Enter], which brings the cursor to Add in the form menu.

At the bottom of the form are several options activated by pressing function keys. These function keys are exactly the same as those in the required materials form for loading rows, and are discussed in Section 3.3.1.4.4 of this SUM.

```
┌──────────────────────────────────────────────────────────────┐
│ ┌────────────────────────────────────────────────────────┐   │
│ │  Add  Duplicate  Edit again  Discard  Quit             │   │
│ └────────────────────────────────────────────────────────┘   │
│ Repair Number:                                               │
│ Equipment Type:                                              │
│ Number Required:                                             │
│ Unit:                                                        │
│                                                              │
│                                                              │
│                                                              │
│                                                              │
│                                                              │
│                                                              │
│                                                              │
│                                                              │
│                                                              │
│                                                              │
│                                                              │
│ [ESC] Done    [F2] Clear field   [Shift-F2] Clear to end   [Shift-F10] More │
│ Form: reget    Table: reget     Field: rnum      Page: 1     │
└──────────────────────────────────────────────────────────────┘
```

Figure 3.21. Form for Loading Rows into the Required Equipment Table.

3.3.1.5.4.1   Add

This is the first option in the form menu. When this option is selected,
data in the form are added to the required equipment table, and the fields are
cleared for the user to add another row.

3.3.1.5.4.2   Duplicate

This is the second option in the form menu. When this option is selected,
data in the form are added to the required equipment table, and retained in the
fields for further use.

3.3.1.5.4.3   Edit Again

This is the third option in the form menu. When this option is selected,
the cursor is returned to the form, where corrections can be made before the
fields are entered into the required equipment table.

3.3.1.5.4.4   Discard

This is the fourth option in the form menu. When this option is selected,
data in the fields are removed from the screen, and also from the required
equipment table.

3.3.1.5.4.5 Quit

This is the fifth option in the form menu. When this option is select. ,
data in the fields are added as a new row in the required equipment table, and
the curser is returned to the first option in the Remove and Edit Equipment Data
Menu. The user can also return to the Remove and Edit Equipment Data Menu
without adding the data to the required equipment table by pressing [Esc] while
in the form menu.

3.3.1.5.5 Load Rows in the Equipment Supply Table

This is the fifth option in the Remove and Edit Equipment Data Menu. The
purpose of this option is to load new rows of data into the equipment supply
table, when new equipment needs to be added to the equipment supply table, and
the user does not want to reload the delimited ASCII file INEQP.DAT as described
in Section 3.3.1.1.4 of this SUM. When this option is selected, the form shown
in Figure 3.22 appears on the screen with the curser at the Equipment Type Field.
The form menu at the top of the screen in Figure 3.22 appears when the user
presses [Esc], or [Enter] at the Unit Field. The three fields in this form are
Equipment Type, Quantity On Hand, and Unit. At the Equipment Type Field, the
user types in the name of the piece of equipment, then [Enter], which brings the
curser to the Quantity On Hand Field. At the Quantity On Hand Field, the user
types the amount of the material obtained, and then [Enter], which brings the
curser to the unit field. At the unit field, the user types the unit of the
material obtained, and then [Enter], which brings the curser to Add in the form
menu.

At the bottom of the form, are several options activated by pressing
function keys. These function keys are exactly the same as those in the required
materials form for loading rows, and are discussed in Section 3.3.1.4.4 of this
SUM.

3.3.1.5.5.1 Add

This is the first option in the form menu. When this option is selected,
data in the form are added to the equipment supply table, and the fields are
cleared for the user to add another row.

3.3.1.5.5.2 Duplicate

This is the second option in the form menu. When this option is selected,
data in the form are added to the equipment supply table, and the data are
retained in the fields for further use.

3.3.1.5.5.3 Edit Again

This option is the third selection in the form menu. When this option is
selected, the user is returned to the form, where corrections can be made before
the fields are entered into the equipment supply table.

```
┌─────────────────────────────────────────────────────────────┐
│ ┃ Add  Duplicate  Edit again  Discard  Quit                ┃ │
│ Equipment Type:                                               │
│ Quantity On Hand:                                             │
│ Unit:                                                         │
│                                                               │
│                                                               │
│                                                               │
│                                                               │
│                                                               │
│                                                               │
│                                                               │
│                                                               │
│                                                               │
│                                                               │
│                                                               │
│                                                               │
│                                                               │
│ [ESC] Done     [F2] Clear field   [Shift-F2] Clear to end    [Shift-F10] More │
│ Form: equp       Table: equp        Field: type      Page: 1 │
└─────────────────────────────────────────────────────────────┘
```

Figure 3.22.   Form for Loading Rows into the Equipment Supply Table.

3.3.1.5.5.4   Discard

This is the fourth option in the form menu. When this option is selected, the data in the fields are removed from the screen, and from the equipment supply table.

3.3.1.5.5.5   Quit

This is the fifth option in the form menu. When this option is selected, the data in the fields is added as a new row in the equipment supply table, and the curser is returned to the first option in the Remove and Edit Equipment Data Menu.   The user can also return to the Remove and Edit Equipment Data Menu without adding the data to the equipment supply table by pressing [Esc] while in the form menu.

3.3.1.5.6   Edit Rows in the Required Equipment Table

This is the sixth option in the Remove and Edit Equipment Data Menu. The purpose of this option is to edit the rows of data in the required equipment table when the quantity of a required piece of equipment is changed, or a piece of equipment is deleted from a repair. When this option is selected, the form shown in Figure 3.23 appears on the screen with the cursor at Edit in the menu at the top of the screen. The equipment in the required equipment table appear

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```
┌─────────────────────────────────────────────────────────────────┐
│ ┌───────────────────────────────────────────────────────────┐   │
│ │  Edit  Save  Add new  Delete  Reset  Previous  Next  Quit  │   │
│ └───────────────────────────────────────────────────────────┘   │
│ Repair Number:   1                                               │
│ Equipment Type:  shotcrete machine                               │
│ Number Required: 1,                                              │
│ Unit:            ea                                              │
│                                                                  │
│                                                                  │
│                                                                  │
│                                                                  │
│                                                                  │
│                                                                  │
│                                                                  │
│                                                                  │
│                                                                  │
│                                                                  │
│                                                                  │
│ [ESC] Done     [F2] Clear field   [Shift-F2] Clear to end   [Shift-F10] More │
│ Form: reset    Table: reset       Field: rnum      Page: 1      │
└─────────────────────────────────────────────────────────────────┘
```

Figure 3.23. Form for Editing Rows into the Required Equipment Table.

in ascending order, with respect to Repair Number. The four fields in this form are Repair Number, Resource, Quantity Required, and Unit.

At the bottom of the form, several options are activated by pressing function keys. These function keys are exactly the same as those in the required materials form for loading rows, and are discussed in Section 3.3.1.4.4 of this SUM.

3.3.1.5.6.1   Edit

This is the first option in the form menu. When this option is selected, the curser is moved from the menu, to the Repair Number Field in the form. At the Repair Number Field, the user types either a repair number that needs materials, and then [Enter], or [Enter] for the current repair number, which brings the cursor to the Equipment Type Field. At the Equipment Type Field, the user types in the name of the required piece of equipment (this must correspond with a name that exists in the equipment supply table), then [Enter], or [Enter] for the current piece of equipment, which brings the cursor to the Number Required Field. At the Number Required Field, the user types the quantity of the piece of equipment that is required for the repair, and then [Enter], or [Enter] for the current quantity, which brings the cursor to the Unit Field. At the Unit

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Field, the user types the unit of the piece of equipment required (this must be consistent with the unit used in the equipment supply table), then [Enter], or [Enter] for the current unit, which brings the cursor to Edit in the form menu.

3.3.1.5.6.2   Save

This is the second option in the form menu. When this option is selected, changes made to the data in the fields displayed on the screen replace the original data in the required equipment table, and the next row in the required equipment table are displayed in the fields on the screen.

3.3.1.5.6.3   Add New

This is the third option in the form menu. When this option is selected, changes made to the fields on the screen are saved as a new row in the required equipment table, and the original data in the fields is retained in the table without changes.

3.3.1.5.6.4   Delete

This is the fourth option in the form menu. When this option is selected, the data in the fields on the screen are removed from the screen, and from the required equipment table. Before this action occurs, a prompt asks the user to confirm the command.

3.3.1.5.6.5   Reset

This is the fifth option in the form menu. When this option is selected, the data in the fields on the screen are returned to there original state before changes were made. This option can only be used before the changes have been saved in the required equipment table.

3.3.1.5.6.6   Previous

This is the sixth option in the form menu. When this option is selected, the data in the fields on the screen are saved in the required equipment table, and the previous row of data in the table is displayed in the fields on the screen.

3.3.1.5.6.7   Next

This is the seventh option in the form menu. When this option is selected, the current data in the fields on the screen are saved in the required equipment table, and the next row of data in the table is displayed in the fields on the screen.

3.3.1.5.6.8   Quit

This is the eighth option in the form menu. When this option is selected, the data in the fields are added as a new row in the required equipment table, and the cursor is returned to the first option in the Remove and Edit Equipment Data Menu. The user can also return to the Remove and Edit Equipment Data Menu

without adding the data to the required equipment table by pressing [Esc] while in the form menu.

3.3.1.5.7   Edit Rows in the Equipment Supply Table

This is the seventh option in the Remove and Edit Equipment Data Menu. The purpose of this option is to edit the rows of data in the equipment supply table when the quantity of equipment on hand is changed. When this option is selected, the form shown in Figure 3.24 appears on the screen with the cursor at Edit in the menu at the top of the screen. Equipment in the equipment supply table appears in ascending order, according to type. The three fields in this form are Equipment Type, Quantity On Hand, and Unit.

At the bottom of the form, there are several options that are activated by pressing function keys. These function keys are exactly the same as those in the required materials form for loading rows, and are discussed in Section 3.3.1.4.4 of this SUM.

3.3.1.5.7.1   Edit

This is the first option in the form menu. When this option is selected, the cursor is moved from the menu, to the Equipment Type Field in the form. At the Equipment Type Field, the user types either the name of a piece of equipment, and then [Enter], or [Enter] for the current piece of equipment, which brings the curser to the Quantity On Hand Field. At the Quantity On Hand Field, the user types the quantity of the piece of equipment that is available, and then [Enter], or [Enter] for the current quantity, which brings the curser to the Unit Field. At the Unit Field, the user types the unit of the piece of equipment that is available, then [Enter], or [Enter] for the current unit, which brings the curser to Edit in the form menu.

3.3.1.5.7.2   Save

This is the second option in the form menu. When this option is selected, the changes made on the data in the fields displayed on the screen replace the original data in the equipment supply table, and the next row in the equipment supply table is displayed in the fields on the screen.

3.3.1.5.7.3   Add New

This is the third option in the form menu. When this option is selected, the changes made to the fields on the screen are saved as a new row in the equipment supply table, and the original data in the fields are retained in the table without changes.

3.3.1.5.7.4   Delete

This is the fourth option in the form menu. When this option is selected, the data in the fields on the screen is removed from the screen, and from the equipment supply table. Before this action occurs, a prompt asks the user to confirm the command.

```
┌─────────────────────────────────────────────────────────────────┐
│ █ Edit  Save  Add new  Delete  Reset  Previous  Next  Quit       │
│ ▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀      │
│ Equipment Type:   buldozer                                       │
│ Quantity On Hand: 15.                                            │
│ Unit:             ea                                             │
│                                                                  │
│                                                                  │
│                                                                  │
│                                                                  │
│                                                                  │
│                                                                  │
│                                                                  │
│                                                                  │
│                                                                  │
│                                                                  │
│                                                                  │
│                                                                  │
│ [ESC] Done    [F2] Clear field   [Shift-F2] Clear to end  [Shift-F10] More │
│ Form: equp       Table: equp       Field: type      Page: 1      │
└─────────────────────────────────────────────────────────────────┘
```

Figure 3.24.   Form for Editing Rows into the Equipment Supply Table.

3.3.1.5.7.5   Reset

This is the fifth option in the form menu. When this option is selected, the data in the fields on the screen are returned to there original state before changes were made. This option can only be used before the changes have been saved in the equipment supply table.

3.3.1.5.7.6   Previous

This is the sixth option in the form menu. When this option is selected, the current data in the fields on the screen is saved in the equipment supply table, and the previous row of data in the table is displayed in the fields on the screen.

3.3.1.5.7.7   Next

This is the seventh option in the form menu. When this option is selected, the current data in the fields on the screen is saved in the equipment supply table, and the next row of data in the table is displayed in the fields on the screen.

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3.3.1.5.7.8 Quit

This option is the eighth selection in the form menu. When this option is selected, the data in the fields is added as a new row in the equipment supply table, and the curser is returned to the first option in the Remove and Edit Equipment Data Menu. The user can also return to the Remove and Edit Equipment Data Menu without adding the data to the equipment supply table by pressing [Esc] while in the form menu.

3.3.1.5.8 Exit

This is the eighth option in the Remove and Edit Equipment Data Menu. When this option is selected, the curser is returned to the first option in the main menu. The user can also be returned to the main menu by pressing the [Esc] at any of the options in the Remove and Edit Equipment Data Menu.

3.3.1.6 View and Print Tables

This is the sixth option in the main menu. When this option is selected, the second level menu entitle View and Print Tables appears on the screen, as shown in Figure 3.25 with option (1) highlighted. This menu contains seven options, which are used to view and print the six tables that are used in the RDBMS, and exit to the main menu. When any of the six view or print options are selected, the horizontal menu Select Print Routing appears under the View and Print Tables Menu as shown in Figure 3.26, with Printer highlighted. If the user chooses Printer, the table is printed out at any printer that the host computer is connected to. If the user chooses Screen, the table appears on the screen. If the user chooses Both, the table is printed out at the printer, and also on the screen.

3.3.1.6.1 View or Print the Required Materials Table

This is the first option in the View and Print Tables Menu. When this option is selected, the user is prompted to send the required materials table to the printer, screen, or both. An example of the required materials table is shown in Figure 3.27. The title "Materials for Repairs" appears in the first row of the table. The date, time, and page number appear in the second row, and the column headings are in the third row. The first column is the repair number, which corresponds to each of the individual repairs. The second column is resource, which corresponds to the required materials. The third column is quantity, which corresponds to the amount of a material that is required. The fourth column is unit, which corresponds to the unit the material is allocated in. At the bottom of the screen, the user is prompted to press any key to continue. When a key is pressed, the View and Print Tables Menu appears on the screen with option (1) highlighted.

3.3.1.6.2 View or Print the Materials Supply Table

This is the second option in the View and Print Tables Menu. When this option is selected, the user is prompted to send the materials supply table to the printer, screen, or both. An example of the materials supply table is shown in Figure 3.28. The title "Materials On Hand" appears in the first row of the

```
┌────────────────────View And Print Tables────────────────────┐
│     (1)  View Or Print The Required Materials Table          │
│     (2)  View Or Print The Materials Supply Table            │
│     (3)  View Or Print The Materials Compute Table           │
│     (4)  View Or Print The Required Equipment Table          │
│     (5)  View Or Print The Equipment Supply Table            │
│     (6)  View Or Print The Equipment Compute Table           │
│     (7)  Exit                                                │
└─────────────────────────────────────────────────────────────┘
```

Figure 3.25.   View and Print Tables Menu.

```
┌────────────────────View And Print Tables────────────────────┐
│     (1)  View Or Print The Required Materials Table          │
│     (2)  View Or Print The Materials Supply Table            │
│     (3)  View Or Print The Materials Compute Table           │
│     (4)  View Or Print The Required Equipment Table          │
│     (5)  View Or Print The Equipment Supply Table            │
│     (6)  View Or Print The Equipment Compute Table           │
│     (7)  Exit                                                │
└─────────────────────────────────────────────────────────────┘
┌────────────────────Select Print Routing─────────────────────┐
│ Printer   Screen   Both                                      │
└─────────────────────────────────────────────────────────────┘
```

Figure 3.26.   View and Print Tables Menu with Select Print Routing Menu.

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```
┌──────────────────────────────────────────────────────────────────┐
│          (7)  Exit                                                 │
├──────────────────────────────────────────────────────────────────┤
│                    ═══Select Print Routing═══                       │
│  Printer   Screen   Both                                           │
└──────────────────────────────────────────────────────────────────┘

                        MATERIALS FOR REPAIR
DATE:  87/11/98            TIME: 11:45:54               PAGE:    1
REPAIR NUMBER   RESOURCE                               QUANTITY  UNIT
                ─────────────────────                  ───────  ────
            1   2X4 16ft                                   6.   ea
            1   wire mesh                                 42.   sqf
            1   plywood 4X8 .5in                           3.   ea
            1   shotcrete                                 3.1   cy
            2   sheet steel .75in                          2.   sqf
            2   turnbuckle                                 4.   ea
            3   glulam column 12X12 18ft                   1.   ea
            3   2X4 16ft                                   2.   ea
            4   2X6 16ft                                   3.   ea
            4   plywood 4X8 .5in                           2.   ea
            5   2X6 16ft                                   3.   ea
            5   rolled roofing                             1.   rolls
            5   plywood 4X8 .5in                           2.   sqf

Press any key to continue
```

Figure 3.27.   Example of the Required Materials Table.

```
┌──────────────────────────────────────────────────────────────────┐
│                    ═══Select Print Routing═══                       │
│  Printer   Screen   Both                                           │
├──────────────────────────────────────────────────────────────────┤
│                      MATERIALS ON HAND                             │
│  DATE: 87/11/98        TIME: 11:49:14            PAGE:    1        │
│    RESOURCE                          QUANTITY ON HAND     UNIT     │
│  ─────────────────────               ───────────────    ────      │
│  1.25in roofing nails                     5338.          lbs      │
│  1.5in masonry nails                       288.          lbs      │
│  18in I beams 48ft                          38.          ea       │
│  12 gage steel wire                        585.          rolls    │
│  12in duct hose 28ft                         6.          ea       │
│  12in I beam 48ft                           36.          ea       │
│  15in I beam 48ft                           38.          ea       │
│  16d common nails                         7255.          lb       │
│  1X4 flat iron 58ft                        188.          ea       │
│  1X4 flat steel 28ft                       288.          ea       │
│  24in I beam 48ft                           24.          ea       │
│  28d common nails                         2588.          lbs      │
│  2X12 28ft                                5888.          ea       │
│  2X4 12ft                                  388.          ea       │
│  2X4 16ft                                28385.          ea       │
│                                                                    │
│  More output follows - press [ESC] to quit, any key to continue   │
└──────────────────────────────────────────────────────────────────┘
```

Figure 3.28.   Example of the Materials Supply Table.

table. The date, time, and page number appear in the second row, and the column headings are in the third row. The first column is resource, which corresponds to the materials available. The second column is quantity on hand, which corresponds to the amount of a material available. The third column is unit, which corresponds to the unit the material is allocated in. At the bottom of the screen, the user is prompted that more output follows, and to press [Esc] to quit, or any key to continue. By pressing [Esc], the View and Print Tables Menu appears on the screen with option (1) highlighted. If any other key is pressed, the next page in the table appears on the screen.

3.3.1.6.3   View or Print the Materials Compute Table

This is the third option in the View and Print Tables Menu. When this option is selected, the user is prompted to send the materials compute table to the printer, screen, or both. An example of the materials compute table is shown in Figure 3.29. The title "Materials Comparison" appears in the first row of the table. The date, time, and page number appear in the second row, and the column headings are in the third row. The first column is the repair number, which corresponds to each repair. The second column is resource, which corresponds to the required material. The third column is needed, which corresponds to the quantity of material required. The fourth column is on hand, which corresponds to the amount of material that is available. The fifth column is total, which is the amount of material that is left after needed is subtracted from on hand. The sixth column is flag, which is y if total is greater than or equal to zero, and n if total is less than zero. At the bottom of the screen, the user is prompted to press any key to continue. When a key is pressed, the View and Print Tables Menu appears on the screen with option (1) highlighted.

3.3.1.6.4   View or Print the Required Equipment Table

This is the fourth option in the View and Print Tables Menu. When this option is selected, the user is prompted to send the required equipment table to the printer, screen, or both. An example of the required equipment table is shown in Figure 3.30. The title "Required Equipment" appears in the first row of the table. The date, time, and page number appear in the second row, and the column headings are in the third row. The first column is the repair number, which corresponds to each of the individual repairs. The second column is equipment type, which corresponds to the required equipment. The third column is quantity, which corresponds to the amount of the equipment that is required. The fourth column is unit, which corresponds to the unit the equipment is allocated in. At the bottom of the screen, the user is prompted to press any key to continue. When a key is pressed, the View and Print Tables Menu appears on the screen with option (1) highlighted.

3.3.1.6.5   View or Print the Equipment Supply Table

This is the fifth option in the View and Print Tables Menu. When this option is selected, the user is prompted to send the equipment supply table to the printer, screen, or both. An example of the equipment supply table is shown in Figure 3.31. The title "Equipment on Hand" appears in the first row of the table. The date, time, and page number appear in the second row, and the column headings are in the third row. The first column is equipment type, which

```
|                    (7)  Exit                              |
|                                                            |
| ┌─────────────────Select Print Routing─────────────────┐  |
| │ Printer   Screen   Both                               │  |
| └───────────────────────────────────────────────────────┘  |
```

MATERIALS COMPARISON

DATE: 87/11/98   TIME: 11:52:33   PAGE: 1

REP#	RESOURCE	NEEDED	ONHAND	TOTAL	FLAG
1	2X4 16ft	6.	20385.	20379.	y
1	wire mesh	42.	8498.	8456.	y
1	plywood 4X8 .5in	3.	12995.	12992.	y
1	shotcrete	3.1	9996.9	9993.801	y
2	sheet steel .75in	2.	15000.	14998.	y
2	turnbuckle	4.	2.	-2.	n
3	glulam column 12X12 18ft	1.	100.	99.	y
3	2X4 16ft	2.	20385.	20383.	y
4	2X6 16ft	3.	247.	244.	y
4	plywood 4X8 .5in	2.	12995.	12993.	y
5	2X6 16ft	3.	247.	244.	y
5	rolled roofing	1.	4599.	4598.	y
5	plywood 4X8 .5in	2.	12995.	12993.	y

Press any key to continue

Figure 3.29. Example of the Materials Compute Table.

```
| (5)  View Or Print The Equipment Supply Table              |
| (6)  View Or Print The Equipment Compute Table             |
| (7)  Exit                                                  |
|                                                            |
| ┌─────────────────Select Print Routing─────────────────┐  |
| │ Printer   Screen   Both                               │  |
| └───────────────────────────────────────────────────────┘  |
```

REQUIRED EQUIPMENT

DATE: 87/11/98   TIME: 11:56:27   PAGE: 1

Repair #	Equipment Type	Quantity	Unit
1	shotcrete machine	1.	ea
1	ramset	1.	ea
1	repair team	1.	ea
2	repair team	1.	ea
3	shoring jack	1.	ea
3	ramset	1.	ea
3	repair team	1.	ea
4	ramset	1.	ea
4	repair team	1.	ea
5	ramset	1.	ea
5	repair team	1.	ea

Press any key to continue

Figure 3.30. Example of the Required Equipment Table.

```
┌────────────────────────View And Print Tables────────────────────────┐
│          (1)  View Or Print The Required Materials Table             │
│          (2)  View Or Print The Materials Supply Table               │
│          (3)  View Or Print The Materials Compute Table              │
│          (4)  View Or Print The Required Equipment Table             │
│          (5)  View Or Print The Equipment Supply Table               │
│          (6)  View Or Print The Equipment Compute Table              │
│          (7)  Exit                                                   │
└─────────────────────────────────────────────────────────────────────┘

┌─────────────────────────Select Print Routing────────────────────────┐
│ Printer  Screen    Both                                              │
└─────────────────────────────────────────────────────────────────────┘

                         EQUIPMENT ON HAND
    DATE: 07/11/90       TIME: 12:02:51              PAGE:    1
    Equipment Type                        Quantity On Hand     Unit
    ─────────────────────────────────    ──────────────────    ────────
    buldozer                                   15.             ea
    hammer                                     50.             ea
    ramset                                      5.             ea
    repair team                                 5.             ea
    shoring jack                                0.             ea
    shotcrete machine                          10.             ea
   Press any key to continue
```

Figure 3.31. Example of the Equipment Supply Table.

corresponds to the equipment that is available. The second column is quantity
on hand. which corresponds to the amount of equipment that is available. The
third column is unit, which corresponds to the unit the equipment is allocated
in. At the bottom of the screen, the user is prompted to press any key to
continue. When a key is pressed, the View and Print Tables Menu appears on the
screen with option (1) highlighted.

3.3.1.6.6 View or Print the Equipment Compute Table

        This is the sixth option in the View and Print Tables Menu. When this
option is selected, the user is prompted to send the equipment compute table to
the printer, screen, or both. An example of the equipment computer table is
shown in Figure 3.32. The title "Equipment Compute Table" appears in the first
row of the table. The date, time, and page number appear in the second row, and
the column headings are in the third row. The first column is the repair number,
which corresponds to each repair. The second column is required equipment, which
corresponds to the type of equipment required. The third column is needed, which
corresponds to the quantity of equipment required. The fourth column in on hand,
which corresponds to the amount of equipment that is available. The fifth column
is total, which is the amount of equipment that is left after needed is
subtracted from on hand. The sixth column is flag, which is y if total is
greater than or equal to zero, and n if total is less than zero. At the bottom
of the screen, the user is prompted to press any key to continue. When a key is
pressed, the View and Print Tables Menu appears on the screen with option (1)
highlighted.

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```
┌──────────────────────────────────────────────────────────────────┐
│     (4)  View Or Print The Required Equipment Table                │
│     (5)  View Or Print The Equipment Supply Table                  │
│     (6)  View Or Print The Equipment Compute Table                 │
│     (7)  Exit   .                                                  │
├──────────────────────────────────────────────────────────────────┤

┌──────────────────────────Select Print Routing────────────────────┐
│  Printer   Screen   Both                                          │
└──────────────────────────────────────────────────────────────────┘

                         EQUIPMENT COMPUTE TABLE
 DATE: 07/11/90              TIME: 12:09:36              PAGE:   1
 Repair #  Required Equipment              Needed  On Hand  Total  Flag
┌──────────────────────────────────────────────────────────────────┐
│  1    shotcrete machine                    1.      10.      9.  y  │
│  1    ramset                               1.       5.      4.  y  │
│  1    repair team                          1.       5.      4.  y  │
│  2    repair team                          1.       5.      4.  y  │
│  3    shoring jack                         1.       0.     -1.  n  │
│  3    ramset                               1.       5.      4.  y  │
│  3    repair team                          1.       5.      4.  y  │
│  4    ramset                               1.       5.      4.  y  │
│  4    repair team                          1.       5.      4.  y  │
│  5    ramset                               1.       5.      4.  y  │
│  5    repair team                          1.       5.      4.  y  │
│ Press any key to continue                                         │
└──────────────────────────────────────────────────────────────────┘
```

Figure 3.32. Example of the Equipment Compute Table.

3.3.1.6.7 Exit

This is the seventh option in the View and Print Tables Menu. When this option is selected, the curser is returned to the first option in the main menu. The user can also be returned to the main menu by pressing the **[Esc]** at any of the options in the Remove and Edit Equipment Data Menu.

3.3.1.7 View or Print Repair Strategy Files

This is the seventh option in the main menu. When this option is selected, the second level menu entitled View and Print Repair Strategy Files appears on the screen, as shown in Figure 3.33 with option (1) highlighted. This menu contains three options, which are used to view or print the repair strategy files, and exit to the main menu.

3.3.1.7.1 View Repair Strategy Files

This is the first option in the View or Print Repair Strategy Files Menu. When this option is selected, a list of ASCII files of the form B(NUMBER).OUT appear on the screen as shown in Figure 3.34, where (NUMBER) corresponds to the Airbase facility number of the structure. As shown in Figure 3.34, the user is prompted to enter the facility number that corresponds to the structure that is being considered for expedient repair. The user types the facility number, then
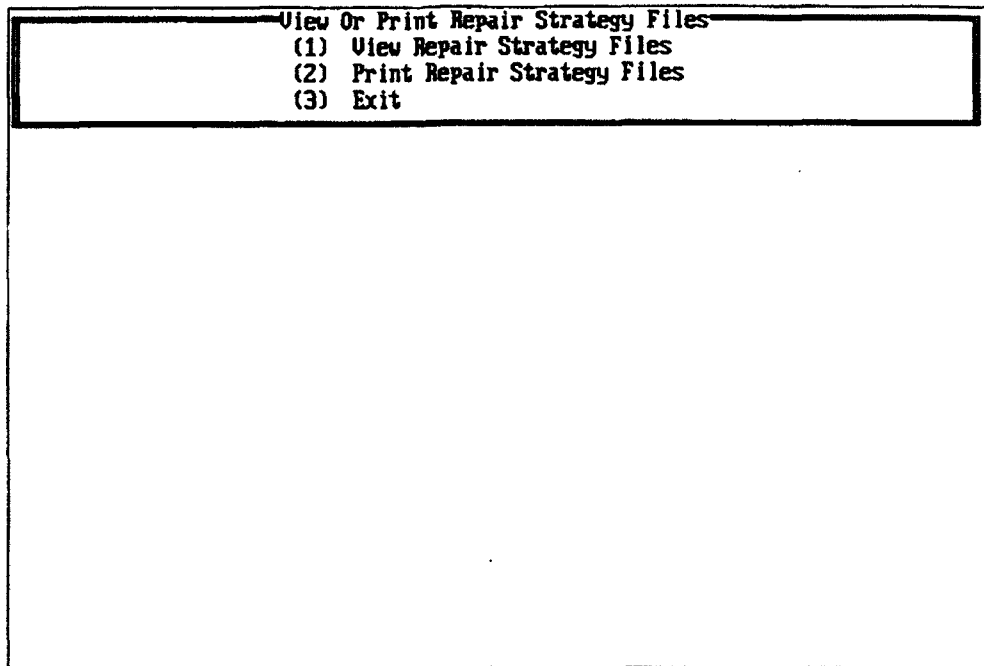
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```
┌──────────────View Or Print Repair Strategy Files──────────────┐
│                (1)  View Repair Strategy Files                 │
│                (2)  Print Repair Strategy Files                │
│                (3)  Exit                                       │
└───────────────────────────────────────────────────────────────┘
```
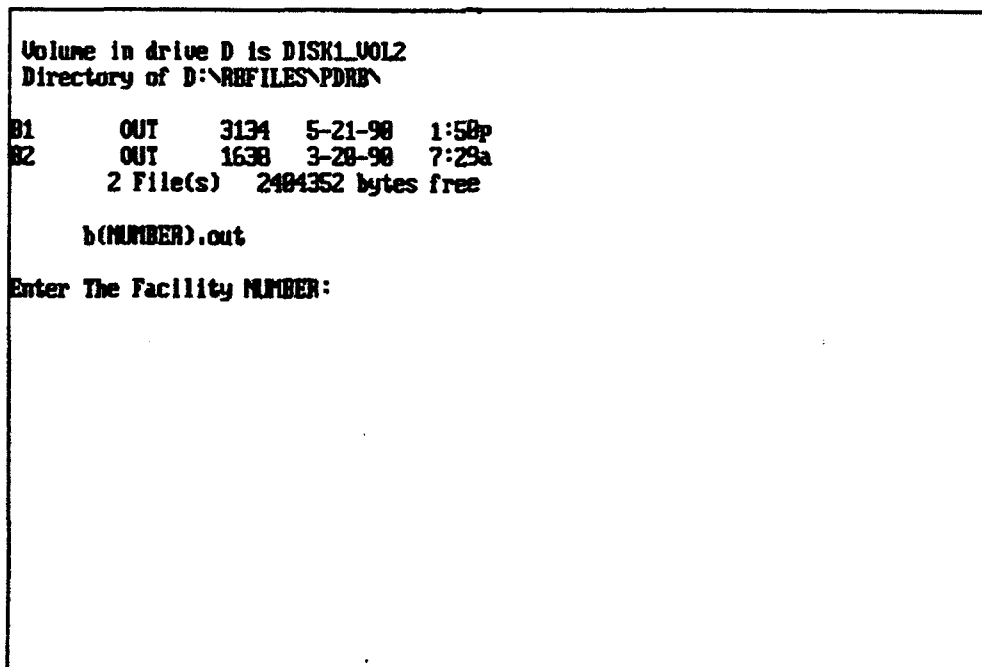
Figure 3.33.   View or Print Repair Strategy Files Menu.

```
Volume in drive D is DISK1_VOL2
Directory of D:\RBFILES\PDRB\

B1        OUT      3134    5-21-90    1:50p
B2        OUT      1638    3-28-90    7:29a
     2 File(s)   2404352 bytes free

   b(NUMBER).out

Enter The Facility NUMBER:
```

Figure 3.34.   Prompt for Repair Strategy File.

presses the [Enter] key, and the ASCII file is output to the screen. An example of a repair strategy file for Building Number 1 is shown in Figure 3.35. At the bottom of the screen, the user is prompted that more output follows, and to press [Esc] to quit, or any key to continue. By pressing [Esc], the View or Print Repair Strategy Files Menu appears on the screen with option (1) highlighted. If any other key is pressed, the next page in the file appears on the screen.

3.3.1.7.2 Print Repair Strategy Files

This is the second option in the View or Print Repair Strategy Files Menu. When this option is selected, a list of ASCII files of the form B(NUMBER).OUT appear on the screen as shown in Figure 3.34, where (NUMBER) corresponds to the Airbase Facility Number of the structure. As shown in Figure 3.34, the user is prompted to enter the facility number that corresponds to the structure being considered for expedient repair. The user types the facility number, then presses the [Enter] key, and the ASCII file is output to the printer.

3.3.1.7.3 Exit

This is the third option in the View and Print Repair Strategy Files Menu. When this option is selected, the cursor is returned to the first option in the main menu. The user can also return to the main menu by pressing [Esc] at any of the options in the Remove and Edit Equipment Data Menu.

3.3.1.8 Exit

This is the eighth option in the Main Menu. When this option is selected, the RDBMS program terminates, and the cursor is returned to the DOS prompt. The user can also return to the DOS prompt by pressing [Esc] at any of the options in the Main Menu.

3.3.2 Help Screens

All menus in the POST-DAM RDBMS contain context-sensitive help screens. This means that the help screen that is called up corresponds to the options in the menu from which it was called. At any menu, the help screen is displayed by pressing the [F1] function key.

3.4 USING THE POST-DAM RDBMS

After entering the main menu, the user needs to remove any old data that may remain in the RDBMS tables. This is accomplished by selecting option (4) in the main menu to delete all of the rows in each of the three materials tables, and option (5) in the main menu to delete all of the rows in each of the three equipment tables. The user then selects option (1) in the main menu to load the tables in the RDBMS with current data. After entering the second level menu "Transfer Data Files," the user selects option (1) to load the required materials file for a desired structure, option (2) to load the required equipment file for the desired structure, option (3) to load the materials supply file, and option (4) to load equipment supply file. The user can examine the data contained in any of the six RDBMS tables by selecting option (6) in the main

```
┌─────────────────────────────────────────────────────────┐
│                                                         │
│            POST-ATTACK DAMAGE ASSESSMENT OF             │
│                 FACILITY NUMBER    1                    │
│               BITBURG AIR BASE, GERMANY                 │
│  ─────────────────────────────────────────────────     │
│                                                         │
│   I.) GENERAL FACILITY INFORMATION                      │
│                                                         │
│      Function    :  "Mission Control Center"            │
│      Priority    :  1                                   │
│      Description :  "Three Story Reinforced Concrete Structure" │
│                                                         │
│                                                         │
│  II.) DAMAGE ASSESSMENTS                                │
│                                                         │
│      Damage Assessment Number :  1                      │
│                                                         │
│      A.) General Element Information                    │
│  More output follows - press [ESC] to quit, any key to continue │
│                                                         │
│                                                         │
└─────────────────────────────────────────────────────────┘
```

Figure 3.35.   Example of a Repair Strategy File.

menu. This option allows the user to view tables on the screen, send tables to the printer, or both.

After current data has been loaded into the RDBMS tables, the user returns to main menu and selects option (3). This option is used to determine if repairs are possible based on equipment availability. From the "Compute Possible Repairs From Equipment" Menu, the user selects option (1). This loads the equipment compute table with the equipment required for each repair, and compares these quantities with the quantities of available equipment. The user can then go to option (2) and delete repairs that are not possible, or go back to the main menu and select option (6) to look at the equipment compute table. If it is determined that a repair can be done in a different way, so as not to require more equipment than is available, the user can choose option (5) in the main menu to edit the required equipment table. From the "Remove and Edit Equipment Data" Menu, the user selects option (6) to edit the required equipment table, then option (3) to delete all of the rows in the equipment compute table. The user then returns to the main menu, selects option (3), and reloads the equipment compute table using option (1) in the "Compute Possible Repairs from Equipment" Menu. The user can then use option (2) to check if all the repairs are possible.

Repairs that have been found to be possible based on equipment availability must be compared with available materials to determine if those repairs are possible based on material availability. To do this, the user selects option (2)

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from the main menu. This option is used to determine if repairs are possible based on material availability. From the "Compute Possible Repairs from Materials" Menu, the user selects option (1). This loads the materials compute table with the materials required for each repair, and compares these quantities with the quantities of available materials. The user can then go to option (2) and delete repairs that are not possible, or go back to the main menu and select option (6) to look at the materials compute table. If it is determined that a repair can be done in a different way, so as not to require more material than is available, the user can choose option (4) in the main menu to edit the required material table. From the "Remove and Edit Material Data" Menu, the user selects option (6) to edit the required materials table, then option (3) to delete all of the rows in the materials compute table. The user then returns to the main menu, selects option (2), and reloads the materials compute table using option (1) in the "Compute Possible Repairs from Materials" Menu. The user can theenuse option (2) to check if all the repairs are possible, and delete those that are not. Option (3) can be used to delete repairs that are possible, but are not wanted.

After a set of possible repairs has been determined, materials must be allocated to a repair. To do this, the user selects option (4) in the "Compute Possible Repairs from Materials" Menu, which prompts the user to enter a repair number. At the prompt, the user enters the repair number that has the highest priority based on personnel judgement. This updates the material supply table to reflect the material allocated to the repair, removes the repair from the required materials table, deletes all rows in the materials compute table, and prompts the user to return to option (1) and reload the materials compute table. The user then goes back to option (1) and repeats this process until each of the possible repairs has had materials allocated to them, or have been deleted from the tables.

After materials have been allocated to all of the desired repairs, the user schedules the repairs based on equipment and labor availability using the Harvard Project Manager (HPM) computer program. After returning to the main menu, the user selects option (7) and then obtains a hard copy of the repair strategy file that corresponds to the structure being considered. Option (7) also allows the user to view the repair strategy files on the screen if desired. The repair strategy file gives the user a detailed description of the damage, repair technique, required materials, and the required equipment and manpower for each of the repairs required by the structure. However, if changes have been made to repair strategies, material requirements, or equipment and manpower requirements, the user must edit the repair strategy file as described in Document 2.2.6 before obtaining a hard copy. The user then returns to the main menu and selects option (6), and obtains a hard copy of the required equipment table. This table gives the user a list of the repairs, which materials have been allocated to. The user then goes to the HPM program using the DESQview 386 program, which is discussed in Section 3.4 of Document 2.2.3, and schedules the repairs, as described in Document 2.2.4. After scheduling the repairs and modifying the repair strategy file, the user returns to the RDBMS program using DESQview 386 as discussed in Section 3.4 of Document 2.2.3. From the main menu, the user selects option (1), and enters the "Transfer Data Files" Menu. From here, the user selects option (5), which writes a new supply file that reflects the materials that were allocated to the repairs. This file can then be accessed by

other organizations on the Air Base that require information about the materials used. After this, the user returns to the main menu and repeats the above process for the next structure that requires repair.

There are several other options that the user may need to use depending on circumstances. These include options that allow the user to edit the supply table and obtain files and printouts of the data contained in the tables. All of the options that are available in the RDBMS are discussed in extensive detail in Section 3.3 of this SUM.

APPENDIX A

POST-DAM RDBMS SOURCE CODE

```
$COMMAND
TDB
SET MESSAGE OFF
OPEN RQMAT
SET ERROR MESSAGE OFF
SET COLOR BACKGRND BLUE
SET COLOR FOREGRND WHITE
SET BELL OFF
SET VAR PICK1 INT
LABEL STARTAPP
  NEWPAGE
  CHOOSE PICK1 FROM Main IN TDB.Apx
  IF PICK1 EQ -1 THEN
    NEWPAGE
    DISPLAY resdtb IN TDB.Apx
    WRITE "Press any key to continue "
    PAUSE
    GOTO STARTAPP
  ENDIF
  IF PICK1 EQ 0 THEN
    GOTO ENDAPP
  ENDIF
  IF PICK1 EQ 1 THEN
    SET VAR PICK2 INT
    SET VAR LEVEL2 INT
    SET VAR LEVEL2 TO 0
    WHILE LEVEL2 EQ 0   THEN
      NEWPAGE
      CHOOSE PICK2 FROM resor IN TDB.Apx
      IF PICK2 EQ -1 THEN
        NEWPAGE
        DISPLAY edf IN TDB.Apx
        WRITE "Press any key to continue "
        PAUSE
      ENDIF
      IF PICK2 EQ 0 THEN
        BREAK
      ENDIF
      IF PICK2 EQ 1 THEN
        RUN indat    IN TDB.Apx
      ENDIF
      IF PICK2 EQ 2 THEN
        RUN ineqp    IN TDB.Apx
      ENDIF
      IF PICK2 EQ 3 THEN
        RUN avdat    IN TDB.Apx
      ENDIF
      IF PICK2 EQ 4 THEN
        RUN eqqdt    IN TDB.Apx
      ENDIF
      IF PICK2 EQ 5 THEN
        RUN upsup    IN TDB.Apx
      ENDIF
      IF PICK2 EQ 6 THEN
        BREAK
```

```
            ENDIF
        ENDWHILE
        CLEAR LEVEL2
        CLEAR PICK2
        GOTO STARTAPP
    ENDIF
    IF PICK1 EQ 2 THEN
        SET VAR PICK2 INT
        SET VAR LEVEL2 INT
        SET VAR LEVEL2 TO 0
        WHILE LEVEL2 EQ 0   THEN
            NEWPAGE
            CHOOSE PICK2 FROM Comp IN TDB.Apx
            IF PICK2 EQ -1 THEN
                NEWPAGE
                DISPLAY cmpd IN TDB.Apx
                WRITE "Press any key to continue "
                PAUSE
            ENDIF
            IF PICK2 EQ 0 THEN
                BREAK
            ENDIF
            IF PICK2 EQ 1 THEN
                RUN chkd      IN TDB.Apx
            ENDIF
            IF PICK2 EQ 2 THEN
                RUN dlrp      IN TDB.Apx
            ENDIF
            IF PICK2 EQ 3 THEN
                RUN rtdlm     IN TDB.Apx
            ENDIF
            IF PICK2 EQ 4 THEN
                RUN cloh      IN TDB.Apx
            ENDIF
            IF PICK2 EQ 5 THEN
                RUN twmat     IN TDB.Apx
            ENDIF
            IF PICK2 EQ 6 THEN
                RUN twsup     IN TDB.Apx
            ENDIF
            IF PICK2 EQ 7 THEN
                BREAK
            ENDIF
        ENDWHILE
        CLEAR LEVEL2
        CLEAR PICK2
        GOTO STARTAPP
    ENDIF
    IF PICK1 EQ 3 THEN
        SET VAR PICK2 INT
        SET VAR LEVEL2 INT
        SET VAR LEVEL2 TO 0
        WHILE LEVEL2 EQ 0   THEN
            NEWPAGE
            CHOOSE PICK2 FROM cmpeqt IN TDB.Apx
```

```
                  IF PICK2 EQ -1 THEN
                    NEWPAGE
                    DISPLAY cprfeq IN TDB.Apx
                    WRITE "Press any key to continue "
                    PAUSE
                  ENDIF
                  IF PICK2 EQ 0 THEN
                    BREAK
                  ENDIF
                  IF PICK2 EQ 1 THEN
                    RUN eqkd      IN TDB.Apx
                  ENDIF
                  IF PICK2 EQ 2 THEN
                    RUN eqrp      IN TDB.Apx
                  ENDIF
                  IF PICK2 EQ 3 THEN
                    RUN tweqp     IN TDB.Apx
                  ENDIF
                  IF PICK2 EQ 4 THEN
                    RUN twesup    IN TDB.Apx
                  ENDIF
                  IF PICK2 EQ 5 THEN
                    BREAK
                  ENDIF
               ENDWHILE
               CLEAR LEVEL2
               CLEAR PICK2
               GOTO STARTAPP
         ENDIF
         IF PICK1 EQ 4 THEN
            SET VAR PICK2 INT
            SET VAR LEVEL2 INT
            SET VAR LEVEL2 TO 0
            WHILE LEVEL2 EQ 0   THEN
               NEWPAGE
               CHOOSE PICK2 FROM edat IN TDB.Apx
               IF PICK2 EQ -1 THEN
                  NEWPAGE
                  DISPLAY raed IN TDB.Apx
                  WRITE "Press any key to continue "
                  PAUSE
               ENDIF
               IF PICK2 EQ 0 THEN
                  BREAK
               ENDIF
               IF PICK2 EQ 1 THEN
                  RUN dli       IN TDB.Apx
               ENDIF
               IF PICK2 EQ 2 THEN
                  RUN dls       IN TDB.Apx
               ENDIF
               IF PICK2 EQ 3 THEN
                  RUN dlc       IN TDB.Apx
               ENDIF
               IF PICK2 EQ 4 THEN
```

```
                ENTER   item
            ENDIF
         IF PICK2 EQ 5 THEN
            ENTER   supply
         ENDIF
         IF PICK2 EQ 6 THEN
            EDIT USING   item      +
               SORTED BY   repnum=A +
               WHERE repnum · EXISTS
         ENDIF
         IF PICK2 EQ 7 THEN
            EDIT USING   supply    +
               SORTED BY   product=A +
               WHERE product  EXISTS
         ENDIF
         IF PICK2 EQ 8 THEN
            BREAK
         ENDIF
      ENDWHILE
      CLEAR LEVEL2
      CLEAR PICK2
      GOTO STARTAPP
   ENDIF
   IF PICK1 EQ 5 THEN
      SET VAR PICK2 INT
      SET VAR LEVEL2 INT
      SET VAR LEVEL2 TO 0
      WHILE LEVEL2 EQ 0   THEN
         NEWPAGE
         CHOOSE PICK2 FROM rmeqmt IN TDB.Apx
         IF PICK2 EQ 0 THEN
            BREAK
         ENDIF
         IF PICK2 EQ 1 THEN
            RUN dlieq     IN TDB.Apx
         ENDIF
         IF PICK2 EQ 2 THEN
            RUN dlseq     IN TDB.Apx
         ENDIF
         IF PICK2 EQ 3 THEN
            RUN dlceq     IN TDB.Apx
         ENDIF
         IF PICK2 EQ 4 THEN
            ENTER   reqet
         ENDIF
         IF PICK2 EQ 5 THEN
            ENTER   equp
         ENDIF
         IF PICK2 EQ 6 THEN
            EDIT USING   reqet     +
               SORTED BY   rnum=A +
               WHERE rnum      EXISTS
         ENDIF
         IF PICK2 EQ 7 THEN
            EDIT USING   equp      +
```

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```
                SORTED BY   type=A +
                  WHERE type      EXISTS
            ENDIF
            IF PICK2 EQ 8 THEN
               BREAK
            ENDIF
         ENDWHILE
         CLEAR LEVEL2
         CLEAR PICK2
         GOTO STARTAPP
      ENDIF
      IF PICK1 EQ 6 THEN
         SET VAR PICK2 INT
         SET VAR LEVEL2 INT
         SET VAR LEVEL2 TO 0
         WHILE LEVEL2 EQ 0   THEN
            NEWPAGE
            CHOOSE PICK2 FROM vprt IN TDB.Apx
            IF PICK2 EQ -1 THEN
               NEWPAGE
               DISPLAY viewdat IN TDB.Apx
               WRITE "Press any key to continue "
               PAUSE
            ENDIF
            IF PICK2 EQ 0 THEN
               BREAK
            ENDIF
            IF PICK2 EQ 1 THEN
               CHOOSE PRNTOPT FROM PRT$$$ IN TDB.Apx
               IF PRNTOPT EQ "Both" THEN
                  OUTPUT PRINTER WITH SCREEN
               ELSE
                  IF PRNTOPT NE "Printer" THEN
                     OUTPUT SCREEN
                  ELSE
                     OUTPUT PRINTER
                  ENDIF
               ENDIF
               PRINT   item         +
                  SORTED BY   repnum=A +
                  WHERE repnum     EXISTS
               OUTPUT SCREEN
               IF PRNTOPT NE "Printer" THEN
                  WRITE "Press any key to continue "
                  PAUSE
               ENDIF
               CLEAR PRNTOPT
            ENDIF
            IF PICK2 EQ 2 THEN
               CHOOSE PRNTOPT FROM PRT$$$ IN TDB.Apx
               IF PRNTOPT EQ "Both" THEN
                  OUTPUT PRINTER WITH SCREEN
               ELSE
                  IF PRNTOPT NE "Printer" THEN
                     OUTPUT SCREEN
```

```
        ELSE
          OUTPUT PRINTER
        ENDIF
      ENDIF
      PRINT  supply     +
        SORTED BY  product=A +
        WHERE product  EXISTS
      OUTPUT SCREEN
      IF PRNTOPT NE "Printer" THEN
        WRITE "Press any key to continue "
        PAUSE
      ENDIF
      CLEAR PRNTOPT
    ENDIF
    IF PICK2 EQ 3 THEN
      CHOOSE PRNTOPT FROM PRT$$$ IN TDB.Apx
      IF PRNTOPT EQ "Both" THEN
        OUTPUT PRINTER WITH SCREEN
      ELSE
        IF PRNTOPT NE "Printer" THEN
          OUTPUT SCREEN
        ELSE
          OUTPUT PRINTER
        ENDIF
      ENDIF
      PRINT  compute    +
        SORTED BY  repnum=A +
        WHERE repnum   EXISTS
      OUTPUT SCREEN
      IF PRNTOPT NE "Printer" THEN
        WRITE "Press any key to continue "
        PAUSE
      ENDIF
      CLEAR PRNTOPT
    ENDIF
    IF PICK2 EQ 4 THEN
      CHOOSE PRNTOPT FROM PRT$$$ IN TDB.Apx
      IF PRNTOPT EQ "Both" THEN
        OUTPUT PRINTER WITH SCREEN
      ELSE
        IF PRNTOPT NE "Printer" THEN
          OUTPUT SCREEN
        ELSE
          OUTPUT PRINTER
        ENDIF
      ENDIF
      PRINT  reqet      +
        SORTED BY  rnum=A +
        WHERE rnum      EXISTS
      OUTPUT SCREEN
      IF PRNTOPT NE "Printer" THEN
        WRITE "Press any key to continue "
        PAUSE
      ENDIF
      CLEAR PRNTOPT
```

```
          ENDIF
          IF PICK2 EQ 5 THEN
            CHOOSE PRNTOPT FROM PRT$$$ IN TDB.Apx
            IF PRNTOPT EQ "Both" THEN
              OUTPUT PRINTER WITH SCREEN
            ELSE
              IF PRNTOPT NE "Printer" THEN
                OUTPUT SCREEN
              ELSE
                OUTPUT PRINTER
              ENDIF
            ENDIF
            PRINT  equp       +
              SORTED BY  type=A +
              WHERE type      EXISTS
            OUTPUT SCREEN
            IF PRNTOPT NE "Printer" THEN
              WRITE "Press any key to continue "
              PAUSE
            ENDIF
            CLEAR PRNTOPT
          ENDIF
          IF PICK2 EQ 6 THEN
            CHOOSE PRNTOPT FROM PRT$$$ IN TDB.Apx
            IF PRNTOPT EQ "Both" THEN
              OUTPUT PRINTER WITH SCREEN
            ELSE
              IF PRNTOPT NE "Printer" THEN
                OUTPUT SCREEN
              ELSE
                OUTPUT PRINTER
              ENDIF
            ENDIF
            PRINT  cmpeq       +
              SORTED BY  rnum=A +
              WHERE rnum      EXISTS
            OUTPUT SCREEN
            IF PRNTOPT NE "Printer" THEN
              WRITE "Press any key to continue "
              PAUSE
            ENDIF
            CLEAR PRNTOPT
          ENDIF
          IF PICK2 EQ 7 THEN
            BREAK
          ENDIF
        ENDWHILE
        CLEAR LEVEL2
        CLEAR PICK2
        GOTO STARTAPP
      ENDIF
      IF PICK1 EQ 7 THEN
        SET VAR PICK2 INT
        SET VAR LEVEL2 INT
        SET VAR LEVEL2 TO 0
```

```
          WHILE LEVEL2 EQ 0  THEN
            NEWPAGE
            CHOOSE PICK2 FROM vprsf IN TDB.Apx
            IF PICK2 EQ 0 THEN
              BREAK
            ENDIF
            IF PICK2 EQ 1 THEN
              RUN vwfl      IN TDB.Apx
            ENDIF
            IF PICK2 EQ 2 THEN
              RUN pwfl      IN TDB.Apx
            ENDIF
            IF PICK2 EQ 3 THEN
              BREAK
            ENDIF
          ENDWHILE
          CLEAR LEVEL2
          CLEAR PICK2
          GOTO STARTAPP
        ENDIF
        IF PICK1 EQ 8 THEN
          GOTO ENDAPP
        ENDIF
        GOTO STARTAPP
   LABEL ENDAPP
   CLEAR PICK1
   RETURN
   $MENU
   PRT$$$
   ROW Select Print Routing
   Printer
   Screen
   Both
   $MENU
   Main
   COLUMN Resource Data Base
   Transfer Data Files
   Compute Possible Repairs From Materials
   Compute Possible Repairs From Equipment
   Remove And Edit Data In Materials Tables
   Remove And Edit Data In Equipment Tables
   View And Print Tables
   View Or Print Repair Strategy Files
   Exit
   $MENU
   resor
   COLUMN Transfer Data Files
   Input Required Materials Files
   Input Required Equipment Files
   Input Materials Supply File
   Input Equipment Supply File
   Output Materials Supply File
   Exit
   $MENU
   edat
```

COLUMN Remove And Edit Material Data
Delete All Rows In The Required Materials Table
Delete All Rows In The Materials Supply Table
Delete All Rows In The Materials Compute Table
Load Rows In The Required Materials Table
Load Rows In The Materials Supply Table
Edit Rows In The Required Materials Table
Edit Rows In The Materials Supply Table
Exit
$MENU
vprt
COLUMN View And Print Tables
View Or Print The Required Materials Table
View Or Print The Materials Supply Table
View Or Print The Materials Compute Table
View Or Print The Required Equipment Table
View Or Print The Equipment Supply Table
View Or Print The Equipment Compute Table
Exit
$MENU
Comp
COLUMN Compute Possible Repairs From Materials
Load Materials Into The Compute Table
Delete Repairs That Are Not Possible
Delete Repairs That Are Not Wanted
Allocate Materials To A Repair
Write The Required Materials Table To MAT.DAT
Write The Materials Supply Table To MSUP.DAT
Exit
$MENU
cmpeqt
COLUMN Compute Possible Repairs From Equipment
Load Equipment Into The Compute Table
Delete Repairs That Are Not Possible
Write The Required Equipment Table To EQP.DAT
Write The Equipment Supply Table To ESUP.DAT
Exit
$MENU
rmeqmt
COLUMN Remove And Edit Equipment Data
Delete Rows In The Required Equipment Table
Delete Rows In The Equipment Supply Table
Delete Rows In The Equipment Compute Table
Load Rows In The Required Equipment Table
Load Rows In The Equipment Supply Table
Edit Rows In The Required Equipment Table
Edit Rows In The Equipment Supply Table
Exit
$MENU
vprsf
COLUMN View Or Print Repair Strategy Files
View Repair Strategy Files
Print Repair Strategy Files
Exit
$SCREEN

resdtb
Transfer Data Files

   This choice leads you to commands that allow you to load tables from ex-
   ternal files, and to create external files from updated supply tables.

Compute Possible Repairs From Materials

   This choice leads you to commands that load the materials compute table from
   the required and supply tables, calculates the repairs that are not possible,
   and allocates materials to possible repairs.

Compute Possible Repairs From Equipment

   This choice leads you to commands that load the equipment compute table from
   the required and supply tables and calculates the repairs that are not pos-
   sible.

Remove And Edit Data In Materials Tables

   This choice leads you to commands that allow you to remove all of the rows
   from the materials tables, and to load and edit rows in the required and
   supply tables.

Remove And Edit Data In Equipment Tables

   This choice leads you to commands that allow you to remove all of the rows
   from the equipment tables, and to load and edit rows in the required and
   supply tables.

View And Print Tables

   This choice leads you to commands that allow you to view and/or print the
   data contained in the materials and equipment tables.

View or Print Repair Strategy Files

   This choice leads you to commands that allow you to view or print the data
   contained in repair strategy files.

Exit

   This choice exits you from the resource data base (this can also be done us-
   ing [ESC]).

$SCREEN
edf
Input Required Materials Files

   This choice loads the required materials table with data held in an external
   file of the form B(NUMBER).MAT, where "(NUMBER)" corresponds to the building

number that the materals need to be allocated to.

Input Required Equipment Files

This choice loads the required equipment table with data held in an external file of the form B(NUMBER).EQP, where "(NUMBER)" corresponds to the building number that the equipment needs to be allocated to.

Input Materials Supply File

This choice loads the materials supply table with the materials currently available on the Air Base.

Input Equipment Supply File

This choice loads the equipment supply table with the equipment currently available on the Air Base.

Output Materials Supply File
----
inis choice loads the contents of the materials supply table into an ASCII file.

Exit

This choice returns you to the Resource Data Base menu.

$SCREEN
raed
Delete All Rows In The Required Materials Table

This choice removes all the data held in the required materials table.

Delete All Rows In The Materials Supply Table

This choice removes all the data held in the materials supply table.

Load Rows In The Required Materials Table

This choice allows you to load individual rows of data into the required materials table without using an external file.

Load Rows In The Materials Supply Table

This choice allows you to load individual rows of data into the materials supply table without using an external file.

Edit Rows In The Required Materials Table

This choice allows you to edit individual rows in the required materials table.

Edit Rows In The Materials Supply Table

This choice allows you to edit individual rows in the materials supply table.

Exit

This choice returns you to the resource data base menu (this can also be done using [ESC]).

$SCREEN
viewdat
View Or Print The Required Materials Table

This choice allows you to look at and also print out the contents of the required materials table.

View Or Print The Materials Supply Table

This choice allows you to look at and also print out the contents of the materials supply table.

View Or Print The Materials Compute Table

This choice allows you to look at and also print out the contents of the materials compute table.

View Or Print The Required Equipment Table

This choice allows you to look at and also print out the contents of the required equipment table.

View Or Print The Equipment Supply Table

This choice allows you to look at and also print out the contents of the equipment supply table.

View Or Print The Equipment Compute Table

This choice allows you to look at and also print out the contents of the equipment compute table.

Exit

This choice returns you to the resource data base menu. (this can also be done usin [ESC])

$SCREEN
cmpd
Load Materials Into The Compute Table

This choice loads data from the materials required and supply tables into the compute table and then calculates if the repair is possible for each repair.

Delete Repairs That Are Not Possible

This choice deletes the repairs that are not possible (because of a lack of

materials) from the required and compute tables. (hit [ENTER] to delete the
repair, and ANY other KEY to save the repair)

Delete Repairs That Are Not Wanted

 This choice deletes repairs that are not wanted from the required and compute
 tables.

Allocate Materials To A Repair

 This choice asks you for a repair number and then deletes that repair from
 the required table, clears out the compute table, and updates the supply
 table with the current resource quantities. (after a repair is chosen you
 must go back to (1) and re-load the compute table with the current values
 in the required and supply tables before continuing to the next repair)

Write The Required Materials Table To MAT.DAT

 This choice writes the data in the required materials table to the external
 file mat.dat.

Write The Materials Supply Table To MSUP.DAT

 This choice writes the data in the materials supply table to the external
 file msup.dat.

Exit

 This choice returns you to the resource data base menu. (this can also be
 done by using [ESC])

$SCREEN
cprfeq
Load Equipment Into The Compute Table

 This choice loads data from the equipment required and supply tables into the
 compute table and then calculates if the repair is possible for each repair.

Delete Repairs That Are Not Possible

 This choice deletes the repairs that are not possible (because of a lack of
 equipment) from the required and compute tables. (hit [ENTER] to delete the
 repair, and ANY other KEY to save the repair)

Write The Required Equipment Table To EQP.DAT

 This choice writes the data in the required equipment table into the external
 file EQP.DAT.

Write The Equipment Supply Table To ESUP.DAT

 This choice writes the data in the equipment supply table into the external
 file ESUP.DAT.

Exit

This choice returns you to the resource data base menu. (this can also be done using [ESC])

```
$COMMAND
indat
*(macro indat)
*(asks user what file to load into the item table)
*(ARA 3/1/90)
CLEAR vfle
CLS
DIR *.mat
SET VAR vfle INT
WRITE "     B(NUMBER).mat      "
WRITE " "
FILLIN vfle USING "Enter The Facility NUMBER: "
IF vfle EQ 1 THEN
 LOAD item FROM b1.mat
ENDIF
IF vfle EQ 2 THEN
 LOAD item FROM b2.mat
ENDIF
IF vfle EQ 3 THEN
 LOAD item FROM b3.mat
ENDIF
IF vfle EQ 4 THEN
 LOAD item FROM b4.mat
ENDIF
IF vfle EQ 5 THEN
 LOAD item FROM b5.mat
ENDIF
IF vfle EQ 6 THEN
 LOAD item FROM b6.mat
ENDIF
IF vfle EQ 7 THEN
 LOAD item FROM b7.mat
ENDIF
IF vfle EQ 8 THEN
 LOAD item FROM b8.mat
ENDIF
IF vfle EQ 9 THEN
 LOAD item FROM b9.mat
ENDIF
IF vfle EQ 10 THEN
 LOAD item FROM b10.mat
ENDIF
IF vfle EQ 11 THEN
 LOAD item FROM b11.mat
ENDIF
IF vfle EQ 12 THEN
 LOAD item FROM b12.mat
ENDIF
IF vfle EQ 13 THEN
 LOAD item FROM b13.mat
ENDIF
```

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```
IF vfle EQ 14 THEN
 LOAD item FROM b14.mat
ENDIF
IF vfle EQ 15 THEN
 LOAD item FROM b15.mat
ENDIF
IF vfle EQ 16 THEN
 LOAD item FROM b16.mat
ENDIF
IF vfle EQ 17 THEN
 LOAD item FROM b17.mat
ENDIF
IF vfle EQ 18 THEN
 LOAD item FROM b18.mat
ENDIF
IF vfle EQ 19 THEN
 LOAD item FROM b19.mat
ENDIF
IF vfle EQ 20 THEN
 LOAD item FROM b20.mat
ENDIF
IF vfle EQ 21 THEN
 LOAD item FROM b21.mat
ENDIF
IF vfle EQ 22 THEN
 LOAD item FROM b22.mat
ENDIF
IF vfle EQ 23 THEN
 LOAD item FROM b23.mat
ENDIF
IF vfle EQ 24 THEN
 LOAD item FROM b24.mat
ENDIF
IF vfle EQ 25 THEN
 LOAD item FROM b25.mat
ENDIF
IF vfle EQ 26 THEN
 LOAD item FROM b26.mat
ENDIF
IF vfle EQ 27 THEN
 LOAD item FROM b27.mat
ENDIF
IF vfle EQ 138 THEN
 LOAD item FROM b138.mat
ENDIF
IF vfle EQ 464 THEN
 LOAD item FROM b464.mat
ENDIF
IF vfle EQ 4058 THEN
 LOAD item FROM b4058.mat
ENDIF
IF vfle EQ 9999 THEN
 LOAD item FROM b9999.mat
ENDIF
IF vfle FAILS THEN
```

```
      RETURN
   ENDIF
   RETURN

   $COMMAND
   ineqp
   *(macro ineqp)
   *(asks user what file to load into the reqet table)
   *(ARA 4/1/90)
   CLEAR vple
   CLS
   DIR *.eqp
   SET VAR vple INT
   WRITE "     B(NUMBER).eqp        "
   WRITE " "
   FILLIN vple USING "Enter The Facility NUMBER: "
   IF vple EQ 1 THEN
    LOAD reqet FROM b1.eqp
   ENDIF
   IF vple EQ 2 THEN
    LOAD reqet FROM b2.eqp
   ENDIF
   IF vple EQ 3 THEN
    LOAD reqet FROM b3.eqp
   ENDIF
   IF vple EQ 4 THEN
    LOAD reqet FROM b4.eqp
   ENDIF
   IF vple EQ 5 THEN
    LOAD reqet FROM b5.eqp
   ENDIF
   IF vple EQ 6 THEN
    LOAD reqet FROM b6.eqp
   ENDIF
   IF vple EQ 7 THEN
    LOAD reqet FROM b7.eqp
   ENDIF
   IF vple EQ 8 THEN
    LOAD reqet FROM b8.eqp
   ENDIF
   IF vple EQ 9 THEN
    LOAD reqet FROM b9.eqp
   ENDIF
   IF vple EQ 10 THEN
    LOAD reqet FROM b10.eqp
   ENDIF
   IF vple EQ 11 THEN
    LOAD reqet FROM b11.eqp
   ENDIF
   IF vple EQ 12 THEN
    LOAD reqet FROM b12.eqp
   ENDIF
   IF vple EQ 13 THEN
    LOAD reqet FROM b13.eqp
   ENDIF
```

```
IF vple EQ 14 THEN
 LOAD reqet FROM b14.eqp
ENDIF
IF vple EQ 15 THEN
 LOAD reqet FROM b15.eqp
ENDIF
IF vple EQ 16 THEN
 LOAD reqet FROM b16.eqp
ENDIF
IF vple EQ 17 THEN
 LOAD reqet FROM b17.eqp
ENDIF
IF vple EQ 18 THEN
 LOAD reqet FROM b18.eqp
ENDIF
IF vple EQ 19 THEN
 LOAD reqet FROM b19.eqp
ENDIF
IF vple EQ 20 THEN
 LOAD reqet FROM b20.eqp
ENDIF
IF vple EQ 21 THEN
 LOAD reqet FROM b21.eqp
ENDIF
IF vple EQ 22 THEN
 LOAD reqet FROM b22.eqp
ENDIF
IF vple EQ 23 THEN
 LOAD reqet FROM b23.eqp
ENDIF
IF vple EQ 24 THEN
 LOAD reqet FROM b24.eqp
ENDIF
IF vple EQ 25 THEN
 LOAD reqet FROM b25.eqp
ENDIF
IF vple EQ 26 THEN
 LOAD reqet FROM b26.eqp
ENDIF
IF vple EQ 27 THEN
 LOAD reqet FROM b27.eqp
ENDIF
IF vple EQ 138 THEN
 LOAD reqet FROM b138.eqp
ENDIF
IF vple EQ 464 THEN
 LOAD reqet FROM b464.eqp
ENDIF
IF vple EQ 4058 THEN
 LOAD reqet FROM b4058.eqp
ENDIF
IF vple EQ 9999 THEN
 LOAD reqet FROM b9999.eqp
ENDIF
IF vple FAILS THEN
```

```
  RETURN
ENDIF
RETURN

$COMMAND
avdat
*(macro avdat)
*(loads data into the supply table)
*(ARA 3/1/90)
LOAD supply FROM isup.dat
RETURN

$COMMAND
eqqdt
*(macro avdat)
*(load data into the supply table)
*(ARA 4/3/90)
LOAD equp FROM ineqp.dat
RETURN

$COMMAND
upsup
*(Outputs a current supply file)
*(ARA 3/7/90)
CLEAR ptr2 vrese vunt vohd vdlm vtt3 vtt1 vtt4 vtt2 vtt5
OUTPUT osup.dat
SET POINTER #2 ptr2 FOR supply
WHILE ptr2 EQ 0 THEN
   SET VAR vrese TO product IN #2
   SET VAR vunt TO size IN #2
   SET VAR vohd TO onhand IN #2
   SET VAR vdlm TO """
   SET VAR vtt3 TO (.vdlm + .vrese + .vdlm)
   SET VAR vtt1 TO (CTXT(.vohd))
   SET VAR vtt4 TO (.vdlm + .vtt1 + .vdlm)
   SET VAR vtt5 TO (.vdlm + .vunt + .vdlm)
   SET VAR vtt2 TO (.vtt3 & .vtt4 & .vtt5)
   WRITE .vtt2
   CLEAR vrese vunt vohd vdlm vtt1 vtt2 vtt3 vtt4 vtt5
   SET VAR vohd REAL
   NEXT #2 ptr2
ENDWHILE
OUTPUT SCREEN
RETURN

$COMMAND
dli
*(deletes all rows in item)
*(ARA 3/2/90)
DELETE ROWS IN item WHERE repnum EXISTS
RETURN

$COMMAND
dls
*(delete rows in supply)
```

```
*(ARA 3/2/90)
DELETE ROWS IN supply WHERE product EXISTS
RETURN


$COMMAND
dlc
*(delete all rows in compute)
*(ARA  3/6/90)
DELETE ROWS IN compute WHERE repnum EXISTS
RETURN


$COMMAND
chkd
*(Loads data into the compute table)
*(ARA 3/5/90)
CLEAR ptr2 vrepn vresr vned voh vtot flag
SET POINTER #2 ptr2 FOR item
WHILE ptr2 EQ 0 THEN
 SET VAR vrepn TO repnum IN #2
 SET VAR vresr TO resource IN #2
 SET VAR vned TO needed IN #2
 SET POINTER #3 FOR supply WHERE product = .vresr
 SET VAR voh TO onhand IN #3
 SET VAR vtot TO (.voh - .vned)
 IF vtot LT 0 THEN
 SET VAR flag TO n
 ELSE
 SET VAR flag TO y
 ENDIF
 INSERT INTO compute VALUES .vrepn .vresr      +
 .vned .voh .vtot .flag
 CLEAR vrepn vresr vned voh vtot flag
 NEXT #2 ptr2
ENDWHILE
RETURN


$COMMAND
dlrp
*(Delete repairs that are not possiable)
*(ARA  3/6/90)
CLEAR ptr2 vrnm vtx1 vtx2 vtx3
SET POINTER #2 ptr2 FOR compute WHERE flag = n
WHILE ptr2 EQ 0 THEN
 CLS
 SET VAR vrnm TO repnum IN #2
 SET VAR vtx1 TO (CTXT(.vrnm))
 SET VAR vtx2 TO "Is Not A Possible Repair!"
 SET VAR vtx3 TO (.vtx1 & .vtx2)
 WRITE .vtx3 AT 7 1
 WRITE "Delete This Repair From The Tables [Y]" AT 8 1
 FILLIN vqs=0 USING "[" AT 8 36
 IF vqs = [ENTER] THEN
 DELETE ROWS IN compute WHERE repnum = .vrnm
 DELETE ROWS IN item WHERE repnum = .vrnm
 DELETE ROWS IN cmpeq WHERE rnum = .vrnm
```

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```
   DELETE ROWS IN reqet WHERE rnum = .vrnm
   ENDIF
   CLEAR vrnm vtx1 vtx2 vtx3
   SET VAR vrnm INT
   NEXT #2 ptr2
ENDWHILE
RETURN


$COMMAND
rtdlm
*(ARA 6/14/90)
*(Delete repairs that are not wanted)
CLEAR vwnum
CLS
WRITE " "
FILLIN vwnum USING "Repair Number To Be Deleted: "
DELETE ROWS IN cmpeq WHERE rnum = .vwnum
DELETE ROWS IN reqet WHERE rnum = .vwnum
DELETE ROWS IN compute WHERE repnum = .vwnum
DELETE ROWS IN item WHERE repnum = .vwnum
IF vwnum FAILS THEN
 RETURN
ENDIF
RETURN


$COMMAND
cloh
*(Updates the supply table)
*(ARA 3/7/90)
CLEAR ptr2 vrep vnew vrsr
CLS
SET VAR vrep INTEGER
FILLIN vrep USING "Enter The Repair Number: " AT 7 1
SET POINTER #2 ptr2 FOR compute WHERE repnum = .vrep
WHILE ptr2 EQ 0 THEN
 SET VAR vrsr TO resource IN #2
 SET VAR vnew TO total IN #2
 SET POINTER #3 FOR supply WHERE product = .vrsr
 CHANGE onhand TO .vnew IN #3
 CLEAR vrsr vnew
 NEXT #2 ptr2
ENDWHILE
DELETE ROWS IN compute WHERE repnum EXISTS
DELETE ROWS IN item WHERE repnum = .vrep
WRITE " "
WRITE "For Another Repair, Go To (1) And Re-load"
WRITE "The Materials Compute Table"
WRITE "(Hit Enter To Continue)"
PAUSE
RETURN


$COMMAND
twmat
*(ARA 6/14/90)
*(print item table to file mat.dat)
```

```
OUTPUT mat.dat
PRINT item SORTED BY repnum=A  +
WHERE repnum EXISTS
OUTPUT SCREEN
RETURN


$COMMAND
twsup
*(ARA 6/14/90)
*(print supply table to file msup.dat)
OUTPUT msup.dat
PRINT supply SORTED BY product=A  +
WHERE product EXISTS
OUTPUT SCREEN
RETURN


$COMMAND
eqkd
*(Loads data into the cmpeg table)
*(ARA 3/5/90)
CLEAR ptr2 vrepg vresg vnedg vohg vtotg vfg
SET POINTER #2 ptr2 FOR reqet
WHILE ptr2 EQ 0 THEN
 SET VAR vrepg TO rnum IN #2
 SET VAR vresg TO resc IN #2
 SET VAR vnedg TO ned IN #2
 SET POINTER #3 FOR equp WHERE type = .vresg
 SET VAR vohg TO quant IN #3
 SET VAR vtotg TO (.vohg - .vnedg)
 IF vtotg LT 0 THEN
 SET VAR vfg TO n
 ELSE
 SET VAR vfg TO y
 ENDIF
 INSERT INTO cmpeq VALUES .vrepg .vresg .vnedg      +
 .vohg .vtotg .vfg
 CLEAR vrepg vresg vnedg vohg vtotg vfg
 NEXT #2 ptr2
ENDWHILE
RETURN

$COMMAND
eqrp
*(Delete repairs that are not possiable)
*(ARA  4/12/90)
CLEAR ptr2 evrnm evtx1 evtx2 evtx3
SET POINTER #2 ptr2 FOR cmpeq WHERE fg = n
WHILE ptr2 EQ 0 THEN
 CLS
 SET VAR evrnm TO rnum IN #2
 SET VAR evtx1 TO (CTXT (.evrnm))
 SET VAR evtx2 TO "Is Not A Possible Repair!"
 SET VAR evtx3 TO (.evtx1 & .evtx2)
 WRITE .evtx3 AT 7 1
 WRITE "Delete This Repair From The Tables [Y]" AT 8 1
```

```
      FILLIN evqs=0    USING "[" AT 8 36
      IF evqs = [ENTER] THEN
      DELETE ROWS IN cmpeq WHERE rnum = .evrnm
      DELETE ROWS IN reqet WHERE rnum = .evrnm
      DELETE ROWS IN compute WHERE repnum = .evrnm
      DELETE ROWS IN item WHERE repnum = .evrnm
      ENDIF
      CLEAR evrnm evtx1 evtx2 evtx3
      SET VAR evrnm INT
      NEXT #2 ptr2
ENDWHILE
RETURN


$COMMAND
tweqp
*(ARA 6/14/90)
*(print reqet table to file eqp.dat)
OUTPUT eqp.dat
PRINT reqet SORTED BY rnum=A  +
WHERE rnum EXISTS
OUTPUT SCREEN
RETURN


$COMMAND
twesup
*(ARA 6/14/90)
*(print equp table to file esup.dat)
OUTPUT esup.dat
PRINT equp SORTED BY type=A  +
WHERE type EXISTS
OUTPUT SCREEN
RETURN


$COMMAND
dlieq
*(deletes all rows in the required equipment table)
*(ARA 4/3/90)
DELETE ROWS IN reqet WHERE rnum EXISTS
RETURN


$COMMAND
dlseq
*(delete rows in supply)
*(ARA 4/3/90)
DELETE ROWS IN equp WHERE type EXISTS
RETURN


$COMMAND
dlceq
*(delete all rows in compute)
*(ARA  4/3/90)
DELETE ROWS IN cmpeq WHERE rnum EXISTS
RETURN


$COMMAND
```

```
vwfl
*(macr vwfl)
*(views output files from pd)
*(ARA 3/20/90)
CLEAR tfle
CLS
DIR *.out
SET VAR tfle INT
WRITE "        b(NUMBER).out   "
WRITE " "
FILLIN tfle USING "Enter The Facility NUMBER: "
CLS
IF tfle EQ 1 THEN
 TYPE b1.out
ENDIF
IF tfle EQ 2 THEN
 TYPE b2.out
ENDIF
IF tfle EQ 3 THEN
 TYPE b3.out
ENDIF
IF tfle EQ 4 THEN
 TYPE b4.out
ENDIF
IF tfle EQ 5 THEN
 TYPE b5.out
ENDIF
IF tfle EQ 6 THEN
 TYPE b6.out
ENDIF
IF tfle EQ 7 THEN
 TYPE b7.out
ENDIF
IF tfle EQ 8 THEN
 TYPE b8.out
ENDIF
IF tfle EQ 9 THEN
 TYPE b9.out
ENDIF
IF tfle EQ 10 THEN
 TYPE b10.out
ENDIF
IF tfle EQ 11 THEN
 TYPE b11.out
ENDIF
IF tfle EQ 12 THEN
 TYPE b12.out
ENDIF
IF tfle EQ 13 THEN
 TYPE b3.out
ENDIF
IF tfle EQ 14 THEN
 TYPE b14.out
ENDIF
IF tfle EQ 15 THEN
```

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```
    TYPE b15.out
ENDIF
IF tfle EQ 16 THEN
    TYPE b16.out
ENDIF
IF tfle EQ 17 THEN
    TYPE b17.out
ENDIF
IF tfle EQ 18 THEN
    TYPE b18.out
ENDIF
IF tfle EQ 19 THEN
    TYPE b19.out
ENDIF
IF tfle EQ 20 THEN
    TYPE b20.out
ENDIF
IF tfle EQ 21 THEN
    TYPE b21.out
ENDIF
IF tfle EQ 22 THEN
    TYPE b22.out
ENDIF
IF tfle EQ 23 THEN
    TYPE b23.out
ENDIF
IF tfle EQ 24 THEN
    TYPE b24.out
ENDIF
IF tfle EQ 25 THEN
    TYPE b25.out
ENDIF
IF tfle EQ 26 THEN
    TYPE b26.out
ENDIF
IF tfle EQ 27 THEN
    TYPE b27.out
ENDIF
IF tfle EQ 138 THEN
    TYPE b138.out
ENDIF
IF tfle EQ 464 THEN
    TYPE b464.out
ENDIF
IF tfle EQ 4058 THEN
    TYPE b4058.out
ENDIF
IF tfle EQ 9999 THEN
    TYPE b9999.out
ENDIF
IF tfle FAILS THEN
    RETURN
ENDIF
RETURN
```

```
$COMMAND
pwfl
*(macro pwfl)
*(prints output files from pd)
*(ARA 4/10/90)
CLEAR tfle
CLS
DIR *.out
SET VAR tfle INT
WRITE "      b(NUMBER).out   "
WRITE " "
FILLIN tfle USING "Enter The Facility NUMBER: "
OUTPUT PRINTER
IF tfle EQ 1 THEN
 TYPE b1.out
ENDIF
IF tfle EQ 2 THEN
 TYPE b2.out
ENDIF
IF tfle EQ 3 THEN
 TYPE b3.out
ENDIF
IF tfle EQ 4 THEN
 TYPE b4.out
ENDIF
IF tfle EQ 5 THEN
 TYPE b5.out
ENDIF
IF tfle EQ 6 THEN
 TYPE b6.out
ENDIF
IF tfle EQ 7 THEN
 TYPE b7.out
ENDIF
IF tfle EQ 8 THEN
 TYPE b8.out
ENDIF
IF tfle EQ 9 THEN
 TYPE b9.out
ENDIF
IF tfle EQ 10 THEN
 TYPE b10.out
ENDIF
IF tfle EQ 11 THEN
 TYPE b11.out
ENDIF
IF tfle EQ 12 THEN
 TYPE b12.out
ENDIF
IF tfle EQ 13 THEN
 TYPE b3.out
ENDIF
IF tfle EQ 14 THEN
 TYPE b14.out
ENDIF
```

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```
        IF tfle EQ 15 THEN
         TYPE b15.out
        ENDIF
        IF tfle EQ 16 THEN
         TYPE b16.out
        ENDIF
        IF tfle EQ 17 THEN
         TYPE b17.out
        ENDIF
        IF tfle EQ 18 THEN
         TYPE b18.out
        ENDIF
        IF tfle EQ 19 THEN
         TYPE b19.out
        ENDIF
        IF tfle EQ 20 THEN
         TYPE b20.out
        ENDIF
        IF tfle EQ 21 THEN
         TYPE b21.out
        ENDIF
        IF tfle EQ 22 THEN
         TYPE b22.out
        ENDIF
        IF tfle EQ 23 THEN
         TYPE b23.out
        ENDIF
        IF tfle EQ 24 THEN
         TYPE b24.out
        ENDIF
        IF tfle EQ 25 THEN
         TYPE b25.out
        ENDIF
        IF tfle EQ 26 THEN
         TYPE b26.out
        ENDIF
        IF tfle EQ 27 THEN
         TYPE b27.out
        ENDIF
        IF tfle EQ 138 THEN
         TYPE b138.out
        ENDIF
        IF tfle EQ 464 THEN
         TYPE b464.out
        ENDIF
        IF tfle EQ 4058 THEN
         TYPE b4058.out
        ENDIF
        IF tfle EQ 9999 THEN
         TYPE b9999.out
        ENDIF
        IF tfle FAILS THEN
         OUTPUT SCREEN
         RETURN
        ENDIF
```